UNIVERSITY OF NEBR.

## ONTRACTORS and ENGINEERS

CONTRACTO

A Buttenheim Publication

GAZÎNÊ OF MODERN CONSTRUCTION

SEPTEMBER 1961



Equipment display at Poznan Fair, Poland





## This mile-long culvert puts storms in their place

Storm water will run through this mile-long culvert and not through the backyards of residents of Warren, Michigan. Serving as the Bear Creek Inter-County Drain, this giant sectional plate structure is built of 880 tons of USS AmBridge Sectional Plate Arches and Pipe Arches. Spans vary from 14 to 24 feet, and rises range from 8 feet to 11 feet. Greenfield Construction Co., Detroit, was the prime contractor. Sectional Plate was fabricated and erected by American Bridge. USS AmBridge Sectional Plate is strong . . . won't crack or break. Sections are prefabricated from tough, zinc-coated corrugated steel. They're highly corrosion resistant and simple and inexpensive to assemble. Installation is fast because forms aren't used. No need to wait out costly curing time. USS AmBridge Sectional Plate is available in a complete range of sizes and is fabricated to meet all federal and state specifications. American Bridge Highway Products are designed to add speed, strength, and permanence to highway and drainage programs. Contact one of our offices for literature and information on American Bridge Highway Products.

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American Bridge Division of United States Steel



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SEPTEMBER,



signed by Johnson and Anderson, Engineers

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General Contractor: Greenfield Construction Co.

This mark tells you a product is made of modern, dependable Steel.



S AmBridge Highway Beam Guard Rail and Posts help safeard traffic. This rugged steel beam guard rail is easy to inlland highly visible.



USS AmBridge I-Beam-Lok bridge flooring is strong, yet lightweight. Available in open and filled types—it is ideal for long spans, movable spans, or for reflooring old bridges where weight is a vital factor.

For more facts, use Request Card and circle No. 251



### CONTRACTORS and ENGINEERS

MAGAZINE OF MODERN CONSTRUCTION

September 1961

A Buttenheim Publication

#### **British equipment exhibition**

Britain's first international show for the construction industry brings 100,000 buyers and spectators to the Crystal Palace grounds in London to examine the products of 170 exhibitors.

#### Steel work suited to bridge site

Steel erection crews working on a high-level truss span along the Pacific coast are suiting construction to the area by handling the job from one side, cantilevering spans, and limiting weight on the bridge.

### A fight to meet new base spex

Contractors in California are working hard to retain the use of bottomdump haul trains where spex for aggregate base have been changed to insure greater accuracy and control. A roundup shows how some contractors are doing the job.

#### Channel dredging cuts unit costs

As many as 11 dredges are working on New Orleans' outlet channel to the Gulf and—because of high production and growing familiarity with the work—prices on the excavation have gone from a high of 17 cents to 5½ cents a yard.

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COVER:

A Michigan 175A rubber-tire tractor shovel is put through its paces at the Poznan Fair. A new Eimco rig was also demonstrated. Capacity crowds attended a demonstration of U. S. construction machinery at the 30th annual international Polish exhibition. Other American rigs in the working display included Ingersoll-Rand and Thor.

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#### Associated Publications

associated Fe	ibilitations			100
American City	OVERVIEW	MART	Municipal	AND UNION

Accepted as Controlled Circulation Publication at Lancaster, Pa. Vol. 58, No. 9, 9 3 3 a copy in the United States and Canada. \$8 a year in other countries. Issued 50 1961 by the Buttenheim Publishing Corp.

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SEPTEMBER, 19

### Area redevelopment work

The Kennedy administration's \$394 million program—under the Area Redevelopment Act—to create new "permanent" jobs in chronically depressed areas will open up new construction opportunities across the country.

The act aims to help areas that have experienced substantial and persistent unemployment to diversify and stabilize their local economies. It makes available up to \$200 million in loan funds to finance new industrial and commercial ventures, and another \$100 million in loan money and \$75 million in grants to build public facilities needed to service the new havelnesses.

As of this writing, all or parts of 750 counties across the nation have designated "redevelopment been areas" under the terms of the act. This includes areas qualified under an unemployment-rate formula; areas with an average family income of less than one-third the national average; farm areas with family incomes of less than one-quarter the national rural average; certain ruraldevelopment counties specified by the Department of Agriculture; low-production farm areas: Indian reservations; and small areas with a longstanding unemployment problem.

The Area Redevelopment Administration expects local business and civic leaders in the eligible areas to take the initiative to obtain redevelopment loans. Sponsors should form new development organizations or organize existing ones into an overall redevelopment group for the entire area affected. They are then to formulate an over-all economic development program which they must submit first to their state's economic development agency and then to the ARA for federal approval. Once the over-all program has been approved, the merits of specific projects will be considered.

On industrial and commercial projects, the ARA may lend money for a variety of purposes. It will help finance construction of new buildings; rehabilitation of abandoned or unoccupied buildings; and alteration, conversion, or enlargement of existing buildings. It will also make loans to finance the purchase of land and—in cases of demonstrated need—machinery and equipment.

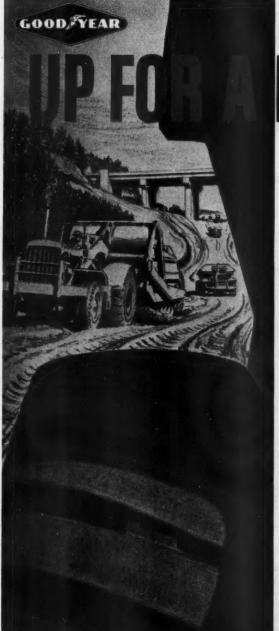
The program will be administered so as to encourage local participation and the use of private capital as much as possible. A "typical" project, as described by the ARA, might be financed 50 per cent from private lenders, 10 per cent from a state development fund, and 5 per cent from a local development corporation. The remaining 35 per cent would be the federal government's share. This could be higher if circumstances war-

ranted, but it could never exceed 65 per cent.

The current interest rate on such ARA loans is about 4% per cent. It will vary in the future with the average yield of Treasury marketable obligations of comparable maturity, with ½ of 1 per cent added for overhead. The maximum loan period is 25 years.

Loans for public facilities will be made under similar conditions, except that the loan period is 40 years, and the current interest rate is 3½ per cent. For public facilities there is no legal limit on the percentage of the total project cost that the ARA loan may cover. However, as with private industry, the projects must be approved as part of an oper-all program for economic development, and some types of facilities may not be financed under the act. The legislation also provides \$4.5 million annually for technical assistance grants, \$4.5 million annually for occupational training, and \$10 million annually for retraining subsistence payments.

For further details on the Area Redevelopment program write on your company letterhead to: U.S. Department of Commerce, 350 Fifth Ave., New York 1. N. Y.



## BIG BID?

### Let Goodyear keep your tire costs down

FINDING THE WORK FACTORS—Goodyear Big-Tire Specialists are prepared to analyze your tire needs with an eye to keeping costs under control. These specialists will check the terrain, loads, climate, roads, schedules and speed problems that confront you, and can select the right Goodyear tires to help you solve them.

PUTTING BIG-TIRE KNOW-HOW TO WORK— From the world's greatest wealth of experience, Goodyear Big-Tire Specialists are uniquely qualified to help you. And they'll provide the best in tread and body designs to help safeguard your contract and your profits.

SETTING UP BIG-TIRE SERVICE — You say the word, and Goodyear Big-Tire Specialists will set up a tire-maintenance program at the jobsite to help save you man-hours, machine-hours and useful tire life. In addition, Goodyear Contractor Service will travel with your job—handle all your tire maintenance and repair needs.

#### With BIG-TIRE PERFORMANCE Example: SUPER HARD ROCK LUG

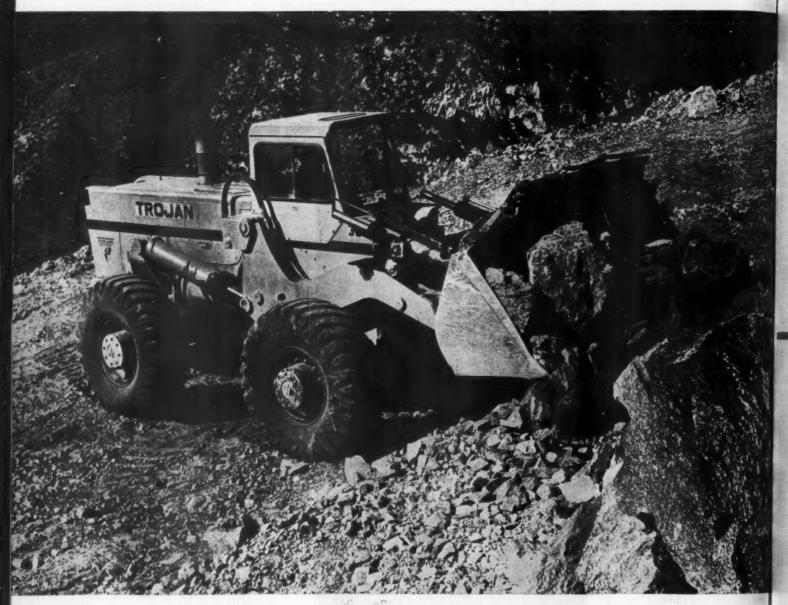
Here's one of Goodyear's Big Tires for the Big Bid you have coming up. It's the SUPER HARD ROCK LUG, built for heavy loads and no roads to make the going easy. Triple-tough 3-T Nylon Cord for the greatest tire stamina, plus new, special cut-shrugging rubber compounds, make this tire a real cost-saver in the roughest off-highway service.

For details on this and other Goodyear specialduty tires, and the Goodyear Contractor Service, see your Goodyear dealer. Or write Goodyear, Truck Tire Dept., Akron 16, Ohio.

GOOD YEAR

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND

On a narrow ledge in the High Sierras, pinned between a 750-ft. sheer drop and a 500-ft. wall of solid granite, this 3 yard Trojan, Model 304, has handled over 173,000 yards of blasted material on the 6 mile Angeles-Crest cut-off while leased by the California State Highway Department . . .



. . . Under the most precarious working conditions, this machine has loaded an average of 130.8 cu. yds. per hour during 1,324 hours of operation with less than 2% downtime. Records of one 11 day work period showed the Trojan handling 1,691 loads — one every 2.8 minutes — for a total of 9,546 cu. yds. Trojan's cost per yard was

\$0.1122, as compared to \$0.5051 per yard for the entire operation . . . Trojan's extra wide tread and long wheelbase were among the many features contributing to the efficient, sure-footed performance on this difficult project . . . Your local distributor will gladly demonstrate these and the many other extra values built into every Trojan model.

AD. NO. 44-4



THE YALE & TOWNE MANUFACTURING COMPANY TROJAN DIVISION • BATAVIA, NEW YORK

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#### Time to go metric?

With cooperation in foreign relations among our friends abroad being emphasized by the present administration, might not this be a good time to consider our present system of weights and measures? With the exception of the English-speaking nations of the North Atlantic Treaty Organization, the majority of NATO countries are using the metric system. The United States Army has recognized the need for standardization with its allies, and is pushing plans to switch from the yard to the meter in measuring the linear distance range of its weapons. Conversion to the meter (39.37 inches) is to be accomplished by January 1, 1966.

By using a common unit of measurement, firing procedures can be simplified. It would also permit better and more extensive use of NATO materiel among its diversifled forces.

If the Army can plan to drop the antiquated yard as a measure of distance in the name of defense, could not the engineer do likewise in the interest of world-wide standardization of weights and measures? The world trend is to the metric system, with Japan and India being the latest to convert. The changeover in those countries was easier than at first anticipated because of a well planned educational program developed in the newspapers, magazines, radio, and television.

Computations of all kinds would be simplified, and international communications could be improved. Engineers and scientists would benefit from such a standardization that could soon be international in scope. Industry might have some misgivings about any immediate advantages, but should reap long-range benefits from such a conversion, especially in international trade.

#### Concrete tie-up

With the need of cooperation being so important for the common good, it is hard to understand why a strike could be prolonged, as was that of the concrete truckmix drivers in New York this summer. The long walkout idled not only the drivers concerned but also more than 50,000 skilled workers who depend on the delivery of ready-mix concrete to keep working.

The strike shut down all building construction going up in concrete, for there is no longer any batching and mixing of concrete at the site as was done in the past. In Europe, however, practically all building concrete is mixed right on the job. Steel-frame buildings were also affected, since floor slabs cannot lag more than five floors behind the steel erection according to the New York City building code.

As is usually the case, the strikers wanted more of an increase than the employers felt they could afford. The latter's offer of a 25-cent hourly wage boost, plus a 7cent rise in pension and welfare contribution, was turned down by the truck drivers. Their union wanted a 50-cent-an-hour increase to the existing \$3.50 hourly rate. While both sides argued, construction was halted on projects involving \$500 million.

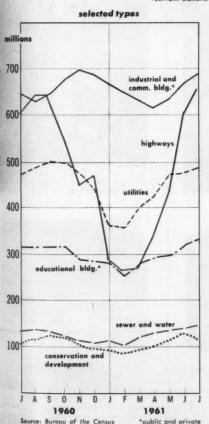
After eight weeks-weeks of summer weather that are usually most productive for contractors—the strike of 1,200 concrete-mix drivers ended with the Teamsters getting the 50-cent-an-hour hike. It is still something of a mystery why the various federal, state, and city mediators could not end the tie-up sooner than they did. It will be no mystery if the cost of construction also rises to keep pace with spiraling wage rates. Actually both sides lost in this extended dispute, but most of all the public is the loser.

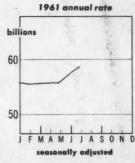
### Industry Trends

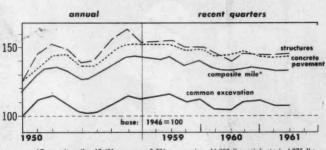
#### DOLLAR VALUE OF NEW CONSTRUCTION

Recent Monthly Trends

(current dollars)



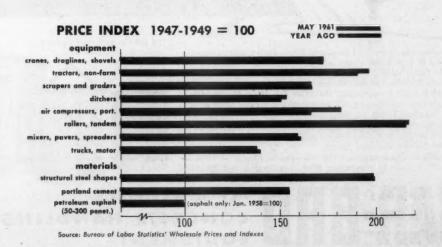




AVERAGE BID PRICES

Federal Aid Highway Construction

\*Composite mile=17,491 c.y. exc.; 3,726 s.y. paving; 16,000 lbs. reinf. steel; 4,325 lbs. struct. steel; and 68 c.y. struct. conc.



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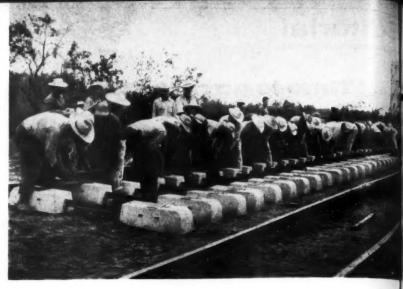
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## Mexicans hack rail line through rugged mountains

When the machine that automatically lays rails is when the machine that automatically lays rails is down for repair, laborers take over and do the job by hand. Note the ties of concrete and steel construction. The route of the new railroad runs through one of the most rugged mountain areas on the North American continent.



THE BEST DAM BUCKETS in the world!

Best by a dam site-Gar-Bro Low-Slump Heavy-Duty Concrete Buckets are designed to handle low slump concrete with massive aggregate . . . designed for fast, efficient concrete placement under the difficult conditions faced by dam builders. Gar-Bro Buckets are used in a vast majority (over 80%) of the world's dam projects. Now, Gar-Bro Power Hooks permit crane or cableway operators to pick up and release buckets safely at will without a "hook-on" man.

Gar-Bro Buckets are used and approved on U.S.E.D. and Bureau of Reclamation projects and many foreign projects as well.

Write for the new Gar-Bro catalog.

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2, 4, and 8 cu, yd. buckets illustrated -with plate type, power h type and lifting lug type



The World's Most Complete Line!

CONCRETE HANDLING

Financial and terrain difficultie were the biggest problems in construction of the Chihuahua and Pacific Railroad, which will run 570 miles from Ojinaga, Mexico-just across the Rio Grande from Presidio Texas-to Topolobampo on the Gulf of California.

The financial problems are over. Construction actually started in 1903 but little was accomplished until 1953, when the long-dormant project was ordered resumed by the Mexican government. The line is expected to b finished this month, making it possible for passengers to travel by rail from Kansas City to Mexico's Pacific Coast, a distance of 1,660 miles.

Thousands of Mexican workers including the Tarahumara Indians of the region, are currently at work completing the last 40-mile link of the line. . . .



Deck construction is under the high bridges; spans a canyon at La Laja.



In the nearly roadless region, traffic makes its way as best it can. In this spot nature has paved the way

CONTRACTORS AND ENGINEE

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vote-get The ac defense little I tion mer \$200 mil shelters but it back in proved. billion frighter both sid aisles, loudly i ending

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### Surveying Washington . . .

by E. E. Halmos, Jr.

You have now seen just about all of the legislation that Congress will act upon this year. The reasons are many and complex, and they include Congress' desire to go home, precocupation with the worsening international picture, and a political situation that has made it advantageous to concentrate on national affairs rather than local ones. There'll be time enough to



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concentrate on local—and vote-getting—issues in 1962.

The added \$3.4 billion for defense spending could mean a little more work for construction men (for instance, about \$200 million for fallout shelters in public buildings), but it could also mean a cutback in programs already approved. Prospect of a \$6 billion deficit has really frightened conservatives on both sides of the political aisles, and they're calling loudly for an easing of other spending.

Many bills of great interest to construction will be passed over this session. Among these are attempts to amend labor laws, tax relief for the self-employed, numerous special projects like Fryingpan-Arkansas, moves to upgrade federal professional employees, establishment of a Department of Urban Affairs or a Department of Transportation, and many

Labor's antics on mi

Labor's antics on missilebase construction are the final reason that changes in Taft-Hartley (particularly situs picketing) won't be made. Chances were never good, but revelations before Senate committees have now brought a complete turn-around in Capitol Hill attitudes. One senator has already called for legislation against "those who put personal gain over national defense"; another has called for extension of anti-trust laws to cover unions.

Just to copper-rivet the present Washington attitude, the President's Special Missile Sites Labor Commission laid down a set of rules that will (1) require that missilebase wage rates must not be greater than rates on other construction in similar circumstances; and (2) provide for review of all such contracts by the commission. The anti-Discrimination Committee (also a Presidential group) added more requirements: contractors and subs must file reports attesting compliance with nonsegregation orders, and certify that labor unions they deal with do not discriminate.

There is \$570 million in construction money included in the final version of the stream-pollution bill. Some \$80 million in grants has been allotted for fiscal year 1962, \$90 million for 1963, and \$100 million from 1964 through 1967. Also included are funds to the Department of Health, Education and Welfare for construction of five experimental laboratories, for the study of pollution problems, to be built in various locations throughout the U.S.

Strangulation in the House Rules Committee of aid-to-ed-ucation bills will not affect aid to so-called "impacted" areas where federal installations have brought a flood of new children to local schools. Some 300 of the 437 congressmen come from such areas, and they don't want payments stopped. The hole in local budgets might be too big.

. . . .

Stanford University will get funds to start work on a \$114 million linear nuclear accelerator, a 2-mile-long building in which, say scientists, power can be increased almost at will and length added without impairing efficiency.

However, another aspect of the \$246 million construction appropriation for the Atomic Energy Commission caused a real dustup in Congress—the \$95 million appropriation for a steam-electric generating plant to use waste heat from the AEC's plutonium reactor at Hanford, Wash. Argument centered on the classic public vs. private power debate, and parliamentarians will be wrangling for months over this one.

The \$75 million airport-aid bill was also in trouble, not over the amount of money but over the method of disbursing it. The House wants to put the program on a "prior annual authorization" basis, requiring review by appropriations committees each year. The Sen-ate wants to continue the present contract authorization principle, which airport construction officials prefer. The program was on the "annual authorization" basis from 1946 through 1955; in that period Congress never approved the full requested authorization, and one year it even failed to approve any funds.

The General Services Administration is going to stay hot on the trail of identical bidding. A set of new regulations (General Regulation 26) is designed to discourage identical bidding and provide the Attor-



ney General with information
"of assistance in enforcing the
law." Contracting agencies are
instructed to report all instances of identical bidding to
the Department of Justice
within 20 days following the
bid opening.

Identical bidding is defined as "bids which appear on the face . . . to be identical as to unit price or total amount; or are found in a contracting agency's normal process of evaluating bids for award, to be identical as to unit price or total amount." That is a broad definition and could lead to considerable trouble for contractors.

#### **Labor Review**

#### Long-term agreements reported by tradesmen in Birmingham, Mobile

Building tradesmen working out of two Alabama cities wrapped up new contracts with the Associated General Contractors. In Mobile, 2-year agreements were made, and, for the first time, several crafts negotiated employer-financed welfare programs. In Birmingham, 3-year packages of 35 and 40 cents were reported.

The Mobile settlements generally provide wage increases totaling 25 cents an hour, with the first installments deferred until the beginning of next year. Welfare contributions add 12½ cents to the hourly packages in five cases.



Bricklayers, currently working at a base rate of \$4.06, go to \$4.16 on January 1, 1962, and receive an additional 15 cents July 1, 1962.

For the operating engineers, the crane and shovel classifications receive  $\$3.77\frac{1}{2}$ . On January 1, 1962, employers begin paying  $12\frac{1}{2}$  cents an hour to a new welfare fund, and a 15-cent wage increase is slated for July 1, 1963.

Ironworkers, working at a base rate of \$3.60, get 10 cents January 1, 1962; 15 cents July 1, 1962; and a  $12\frac{1}{2}$ -cent contribution for welfare at the latter date.

Mobile laborers presently receive \$1.90 an hour. They are due to go to \$2 an hour January 1, 1962. On July 1, 1962, they receive 15 cents more in wages, along with a 12½-cent employer contribution for welfare.

Plasterers working at \$3.65 an hour will go to \$3.75 an hour January 1, 1962, under the terms of their new agreement. On July 1, an additional 15-cent increase will put them at the \$3.90-an-hour level. A 12½-cent employer contribution also is slated for the July 1 date.

Teamster truck drivers driving up to 1½ tons are currently working for \$2.31 an hour. On January 1, 1962, they go to \$2.41, and will receive \$2.56 an hour with the final 15-cent hike July 1, 1962. They also receive 12½ cents for welfare.

Meanwhile, in Birmingham four crafts for the first time in their history accepted 3-year agreements with the Associated General Contractors.

The carpenters, working at a base rate of \$3.20, get 40 cents over the 3-year period.

Birmingham laborers agreed to a 35-cent settlement for the three years.

Teamsters get \$1.97 up to  $1\frac{1}{2}$  tons as a current base rate. They receive a 35-cent package for the 3-year period, with pay hikes scheduled for the same

dates as the laborers.

The operating engineers settled a 2-year agreement with the AGC calling for a 25-cent package. A 15-cent hike was slated for May 15, 1961, and another dime increase is due May 15, 1962.

The Birmingham agreements cover 37 Alabama counties.

### Davis-Bacon rates apply on state-built road, says Comptroller General

Comptroller General Joseph Campbell advised Commissioner L. H. Hewitt of the International Boundary and Water Commission that Davis-

Bacon wage rates prescribed by the Secretary of Labor, rather than rates set by the state of Texas, apply to construction of an access road between P. S. 90 and Amistad Dam, Texas

The commissioner apparently had indicated a preference for state-fixed rates, but Campbell in effect told him the point was immaterial since he had informal assurance from the Office of the Solicitor of Labor that the Davis-Bacon rates could be expected to match those the state of Texas would set.

The access road is to be constructed by Texas according to state specifica-

tions on right-of-ways obtained by the United States. When work on the dam is completed, an easement will be granted Texas, and from then on the road will be a part of the state highway system. But temporarily the road is part of a public work of the United States, and so the Davis-Bacon Act applies, Campbell says.

## Oregon strike-lockout ties up construction to tune of \$500 million

Work was halted on an estimated \$500 million worth of construction in Oregon and southwest Washington, and contract negotiations were broken

New tips fomou

## LUBE LOGIC

## Don't let storage tank contaminate gasoline

One of the basic essentials of good equipment performance is clean fuel; and the best way to make sure the fuel you use is as clean as the fuel you buy is to keep your own storage facilities up to snuff.

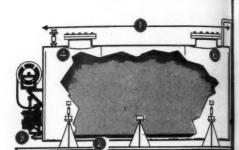
What does it take to make the ideal gasoline storage tank? Here are some of the specifics that Texaco engineers have found to be most important.

The ideal gasoline storage tank has:

1. Plenty of room. Every time you fill a tank you stir up the sediment at the bottom. The bigger the tank, the less it has to be refilled, and the longer the sediment stays settled on the bottom.

2. Welded construction.

3. A 11/2" drain valve, located at the lowest point.



4. A large hand hole plate or manhole, to make deceasier

 A suction line to the gasoline pump located several in above the tank bottom, to avoid drawing out the seding and condensate.

6. A fine-mesh strainer over the filler opening.

## Four tips to keep hydraulic oil clean in storage and handling

Even the best maintenance techniques won't keep your hydraulic equipment on the move if you don't keep the oil clean while it's in storage and while it's being put into the machine. Here are four simple precautions that will assure you of getting nothing but clean, clear oil in the hydraulic system:



1. Store the drums on their sides, indoors if possible, but in any event under some sort of shelter.



Before you open a drum, clean the top so that no dirt or water can fall into the oil.



Make sure that you use only clean hose and containers in transferring the oil from the drum to the equipment.



4. Filter the oil as it enters the reservoir on the machine. If the fill pipe on the equipment doesn't have a filter, use a funnel fitted with a 200-mesh screen.



## Protect diesel fuel injector with periodic tank drains

Dirt and water in diesel fuel can ruin a fuel injects in no time. Even if you keep the fuel clean durn storage, there's still a good chance that temperature changes will create enough condensation in the future tank on your rig to start rusting in the injector Several operators have pretty well solved this problem by partially draining the fuel tank once or twice week. Simply draw off about a gallon of fluid through the drain valve at the bottom of the fuel tank. You lose some fuel this way, but you also get the accumulated water and other contaminants clear out of the fuel system. The cost of the fuel you drain off is small loss compared to the repair bills you save on the fuel injectors.

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ENGINEERS SEPTEMBER

off again by the Associated General Contractors and the Operating Engineers. Both sides were holding firmly to positions taken some weeks back, and both claimed the full support of their respective memberships.

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AGC was standing on its 3-year 351/2-cent offer, which was previously voted down by union members. The employers' proposal was a contract effective June 1, with an initial increase of 13 cents in hourly rates, 10 cents more a year later, and another 10 cents June 1, 1963. In addition, the contractors would increase the current 71/2-cent hourly contribution to

According to a union official, hiring arrangements were the major block to a settlement of the costly dispute. The operating engineers insisted that the new agreement establish an exclusive hiring hall. The union also wanted travel and subsistence provisions revised. Employers opposed both demands.

Negotiations between the association and the union began last February. The previous agreement expired March 31, but workmen continued on the job until late June. The union then picketed scattered projectsfirst in southern Washington, then in the Portland area—and contractors

retaliated by shutting down all work in the area.

#### Joint negotiations by Fort Worth crafts avert major strike

A strike by three construction craft unions in the Fort Worth, Texas, area was averted as ironworkers, carpenters, and operating engineers accepted new contracts.

The Fort Worth agreements. reached following the joint negotiations of the three crafts with representatives of the Associated General Contractors, call for pay increases of from 25 to 271/2 cents over the next two years. The unions originally asked for 30 cents an hour and had been offered 20-cent increases by AGC before final settlement.

Iron Workers Local 262, which has been working without a contract since April 1, gets a 2-year contract from that date. Wage increases agreed to were 7½ cents immediately, 5 cents the first of next month, and another 7½ cents on April 1, 1962. A final raise will begin on October 1, 1962, when the ironworkers will receive an additional 71/2 cents.



Carpenters Local 1882 and Operating Engineers Local 819 received pay boosts of 71/2 cents; another 5 cents is due on January 1, 1962: 71/2 cents on July 1, 1962; and 5 cents on January 1, 1963.

The president of the Fort Worth Building and Construction Trades Council said the agreements "averted the worst strike in the history of the construction industry in Fort Worth."

## New Jersey ironworkers negotiate hefty package in 3-year settlement

A 3-year settlement that will add almost 90 cents an hour to wage rates and fringes was reported by the Iron Workers District Council of Northern New Jersey, comprising local unions in Newark, Jersey City, Perth Amboy, Elizabeth, and Hackensack.

Wages rates were increased 30 cents an hour in July, and employer contributions for health-welfare and pensions each were increased 1 per cent. Employers now pay 4 per cent, or about 21 cents an hour, for health and welfare: and 6 per cent, or almost 31 cents an hour, for pensions.

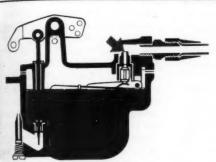
The journeyman rate-now \$5.15 hourly-will be increased 25 cents more next year, and a final 20-cent increase is payable July 1, 1963.

#### **New York State laborers** return to work with 3-year contract

A laborer's strike in Westchester County, New York, which threatened to tie up heavy-construction projects in the area was ended as the union accepted a new 3-year contract calling for stepped wage increases totaling 65 cents an hour and additional fringe benefits.

Laborers Local 60 received a wage boost of 25 cents an hour retroactive to May 1; an additional 20 cents an hour beginning May 1, 1962; and a final 20-cent boost on May 1, 1963.

## omore efficient maintenance



### **Quick cure** for carburetor flooding

Repeated stalling and hard restarting is often caused by a tiny particle of grit, which lodges under the carburetor float needle valve, lets too much gasoline into the carburetor and causes flooding. You can often solve the problem with the following routine: disconnect the fuel line at the carburetor and plug it with a cork, a pencil or anything else that will fit. Then run the engine until you've used up all the fuel in the carburetor. Reconnect the fuel line, crank the engine, and the rush of gasoline into the empty carburetor will often flush the foreign matter out of the needle valve seat. If you have a friend but no cork, have the friend start the engine while you plug the disconnected line with your thumb. Same difference.









1. PLAN FOR PROFIT—Texaco's newest colorand-sound movie. Dramatizes the major savings you can make with the proper investment of less than 1% of your total budget—the amount you spend on lubricants. Film features latest lubrication methods and equipment on a number of contracting projects, demonstrating the Texaco Simplified Lubrication Plan in action.



2. FUNDAMENTALS OF LUBRICATION—a brand new Texaco color slide film. A clear, concise once-over that defines technical terms like "viscosity" and explains specifically what lubrication is and what it does. This down-to-earth

cany what indication is and what it does. This down-to-earth discussion will give the lubrication man a new understanding of the importance of lubrication, and a fresh interest in his work. It's supplemented with a manual that covers the same ground in greater detail.



3. LUBRICATION OF EARTHMOVING EQUIP-MENT-a new slide film, in color. A concise, easy-to-understand analysis of proper

lubrication of engines, wheel bearings, steering, track rollers, crawler treads, hydraulic equipment, wire rope, open and enclosed gears. Supplemented with a manual that covers the whole field of earthmoving equipment lubrication in greater detail.

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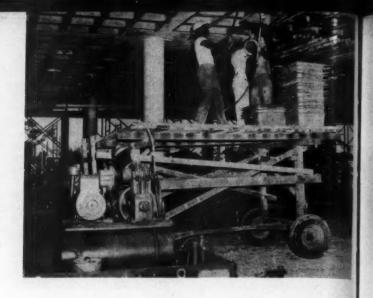
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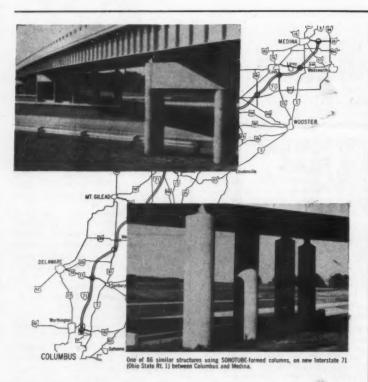


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#### **Tricks of the Trade**

## **Shop-constructed** rolling platform eases stripping job





TIME-SAVERS on highway projects SONOCO

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FIBRE FORMS

for round concrete columns

A total of 901 round concrete columns, supporting 86 bridge structures on the new Ohio Thruway (Interstate 71), were formed quickly and economically with SONOTUBE Fibre Forms.

On highway projects or wherever round concrete columns are required, SONOTUBE Fibre Forms help speed construction and reduce costs. Lightweight and easy to handle and place, they need only minimum bracing, and pour and strip quickly regardless of column size. SONOTUBE Fibre Forms are highly adaptable right on the job, too... can be sawed to fit wall and beam forms or punched for tie-in rods and anchor bolts.

To cut forming time and labor, and to reduce over-all costs, use SONOTUBE Fibre Forms for round columns of concrete—there is no faster, more economical method. Order sizes from 6" to 48" I.D., in standard 18' lengths or as required.

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Teass « Atlanta, Ga. » Ravenna, Ohio » MEXICO: Mexico City » CANADA: Brantford, Ont.

A rolling platform, constructed of 2 × 4's, allowed crews to work in an upright and comfortable position while removing pans during roof construction of Miami's new \$15 million Northside Shopping Center. The shop-built rig rode on four pneumatic tires and was easily wheeled from place to place, facilitating the job of stripping pans from the entire ceiling.

The construction of seven 2-story buildings called for the combining of structural concrete with lightweight perlite insulating concrete. Steel domes 20 inches square and 10 inches deep were laid on the roof frames to form what looked like a gigantic waffle iron. These domes were set in place 4 inches apart except over the center line of the supporting columns where they were placed 16 inches apart. The concrete placed over the steel domes formed 2-way ribs 12 inches thick, with sections between the ribs 2 inches thick. The floor slabs between the ribs are of 3.000psi concrete. The roof slabs between

ribs are of perlite concrete 2 to 4 inches thick, depending on the insulation required.

The domes were oiled when set, When they were all in place, structural concrete was placed and screeded level with the top of the domes. While the concrete was still plastic, U-shaped steel reinforcing rods were placed vertically. After the concrete had set, reinforcing mesh was tied to the exposed portion of the original steel rods.

An average of between 200 and 300 cubic yards of perlite concrete was placed every five hours. A long boom enabled the crane to reach 50 feet out over the slab, so placing of the perlite concrete was accomplished direct from hopper to deck about 60 per cent of the time. The perlite was then screeded in preparation for the built-up roofing.

The oiled roof domes were removed, section by section, the day after concrete placement by workmen on the rolling platform using air pressure averaging 70 psi.



### The Only Shovels Engineered for Construction Work

Our Razor-Back and Razor-Lite shovels are forged with an extra-strong (13 gauge) center backbone that extends from the top of the socket all the way to the cutting edge. To lighten their weight, our blades are tapered thinner at the sides, where shovels never wear out. Give more service per dollar than any other contractor's shovel. The only shovels "fully guaranteed" in writing.

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RAZOR · BACK® For Big Loads and Super-Strength

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CONTRACTORS AND ENGINEES

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vised by t Co., Vanco transferring piles to tru over an Ar fitted with 24-inch cor elevated 20with a trac terials comi of the open matic.

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### **Automatic shutoff** stops conveyor when bin fills

A job-built automatic shutoff switch stops the conveyor feeding a surge bin used for loading base aggregates into trucks when the bin is full. When material is withdrawn, the switch automatically starts the conveyor again.

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This simple but clever rig was devised by the Dorman Construction Co., Vancouver, Wash., for use in transferring materials from stockpiles to trucks. The stockpile is built over an Armco pipe recovery tunnel fitted with a Syntron feeder and a 24-inch conveyor that leads to the elevated 20-yard surge bin. One man with a tractor-dozer keeps the materials coming to the feeder. The rest of the operation is completely automatic.

The contractor built a light steel angle frame out over one side of the

bin and suspended a swinging metal plate from the frame. The plate is welded to a shaft that has a mercury switch attached to one end of it.

As the bin fills, the rock flows against the plate, causing it to tilt and rotate the shaft. This actuates the mercury switch, breaking the circuit and shutting off the feeder and conveyor.

When material is withdrawn from the bin, the plate swings back to the vertical position where the mercury switch again makes contact and starts the equipment.

As a truck pulls in under the bin to load, the driver opens and closes the air-actuated gate of the bin without getting out of the truck cab. The automatically controlled conveyor keeps the materials flowing into the bin whenever it is not full.

PRECISE POWER Continental Red Seal power owes a great share of its fine reputation to the fact that every model is truly specialized . . . It delivers extra satisfaction because it's built to do one job and do it superlatively well. . It is helping to build product acceptance for manufacturers of the finest construction and road building equipment. . . . and it is backed by parts and service facilities from Continental Motors coast to coast. Corporation MUSKEGON MICHIGAN

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WHEN CONSTRUCTION JOBS CALL FOR SOIL COMPACTION

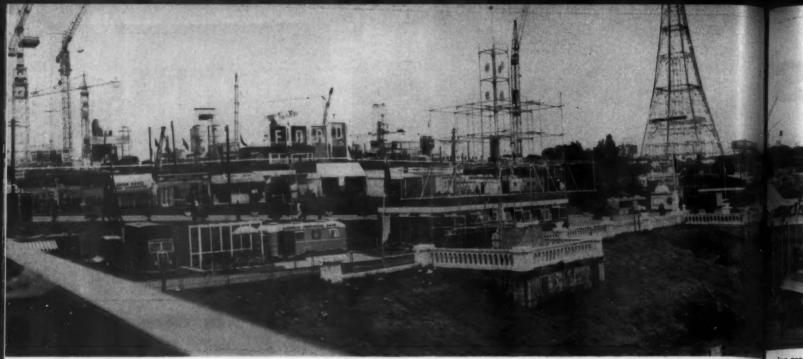
## BARCO is the ANSWER!

When You're Figuring For The "Low Bid"—No other tool can give you the economy and dependability offered by Barco Rammers on high degree soil compaction for all kinds of projects—Highways, Freeways, Hydro-electric Power and Flood Control Dams, Airports, Bridges, Defense Sites, Buildings, and Housing Developments!

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Panoramic view over the International Construction Equipment Exhibition from one of the Bailey bridges

Britain's first outdoor international construction

### **Equipment Exhibition**

Manufacturers, contractors, and building-trades employers hold 9-day London show



The main entrance to the exhibition is through a stylized archway of tubular scaffolding covered with transparent plastic, modeled after the original Crystal Palace building that was destroyed by fire in 1936.

International Harvester's construction-equipment display included also the products of its overseas companies—Drott, Hough, and Wain-Roy. H. D. Frymire, director of sales in Great Britain, was stand executive during the show.



by WILLIAM H. QUIRK, editor

With a comprehensive display of plant, machinery, and equipment for the building and civil engineering construction industry, Great Britain inaugurated its first international exhibition of construction equipment to be held outdoors. An independent venture of private enterprise, the show displayed the products of 170 exhibitors, 50 of which originated outside the United Kingdom. During its 9-day run at the Crystal Palace grounds in London, the exhibit attracted about 100,000 visitors.

To sponsor the project, a new company was formed. Shares in this company are held by the Federation of Manufacturers of Construction Equipment, the National Federation of Building Trade Employers, the Federation of Civil Engineering Contractors, and Industrial and Trade Fairs Limited. Crystal Palace, the exhibit site, is a 33-acre tract in the southern suburbs of London. The "palace," a huge, glass exhibit building, was destroyed by fire in 1936. The site is terraced, affording three different levels for the stands of exhibitors. Two 300-foot-long Bailey bridges, supported on steel towers, were erected out over the lower terrace to provide visitors with an unobstructed view of the two proving grounds where equipment, mostly earthmoving, was demonstrated and tested under actual working conditions.

The exhibition ran from June 15 to 24, 10 a.m. to 6 p.m., and was closed on Sunday. The public paid an admission of 2 shillings 6 pence (35 cents), but those connected with the construction industry were admitted free. Visitors came from all over the world, and a staff of interpreters speaking 15 foreign languages was on hand to serve them. Special bus service, for the half-hour drive from downtown London to the site, was provided gratis for the trade every 30 minutes. Crystal Palace is also served by a suburban railway line and regular city buses. A large parking area was also available for those who drove their own cars.

For over a decade, the British Ministry of Works had been sponsoring various exhibits of contractors' plants in order to encourage the construction industry to use the most modern equipment available. The British construction-machinery industry is now the largest of its kind in Europe, and is currently exporting 50 per cent of its production. Consequently, the Ministry felt that the industry was big enough to put on such exhibits by itself and so withdrew from this activity in favor

(Continued on page 18)



proving grounds. This shot extends from the Babcox-Weitz tower crane, at left, to the Euclid display, at right.



"Euclids move the earth" is the slogan pointing up this display of end-dumps, motor scrapers, and tractors at the joint exhibit of Euclid and its British distributor. BBC television tower is shown in the background.



One of the two proving grounds where the earthmoving equipment is demonstrated for potential buyers. The two areas provided 200,000 square feet of space where the rigs could "work."



Here a Michigan Model 280 rubber-tire Supertractor dozer, equipped with a Cummins 262 brake-horsepower engine, builds up a ramp in the proving grounds for an appreciative audience.



This Hough 120 Payloader demonstrates some fast dirt handling at the proving ground. Its operator is Jim Suter, International Harvester Export Co. representative, from Southern Rhodesia.

## JOE IS PROUD OF HISE

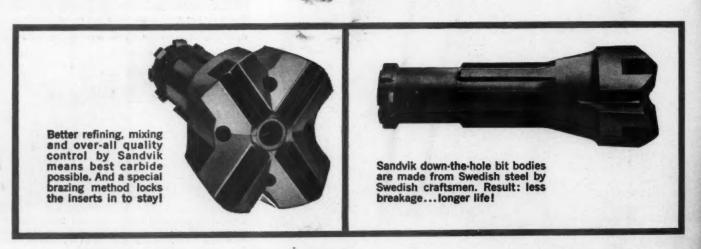
Good reason, too! He's got a 9-inch down-the-hole bit from Sandvik-Coromant, and that means he's got a bit that's better than he's ever used before!

Strong statement? Sure. But here's proof:

First, Sandvik is one of the world's largest and most experienced manufacturers of tungsten carbide. Therefore, Joe gets the highest quality carbide possible. From more effective refining, through better mixing, to more careful control of grain size—everything possible is done to assure Joe longer bit life and more feet between sharpenings.

More proof: Sandvik carbide inserts stay in, thanks to our unique brazing method. And since the entire bit is made from Swedish steel—Joe knows breakage won't be a problem.

You'll be happy with Sandvik-Coromant down-the-hole bits, too. They're available from 4¾ to 9 inches in diameter, and for all types of rigs. Get in touch with your nearest Atlas Copco office today, or write to Dept. CAE-61-1.



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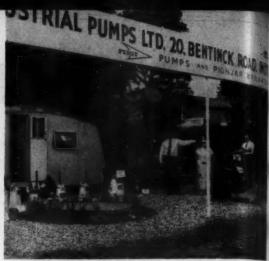
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Cornelly Equipment Co. Ltd. of London is agent for several foreign manufacturers. Here are the G Arbau stock piler and Record centrifugal mixer.



Trembath dehumidifier backed by officials of Greenham Equipments Ltd.—S. A. Mans-field, E. Vickers, and T. Owen White.



Industrial Pumps Ltd. displays the Swedish-made Flygt electrically operated submersible pumps. Flygt pumps are made in Hoosick Falls, N. Y.

### Even at 30° below zero Eimco Tractors start instantly with Chevron Primer Systems

On the Alaska Highway or high in the Swiss Alps on the Mt. Blanc tunnel project . . . and on highway construction in Korea... the Chevron Pressure Primer System eliminates cold-starting problems.

It saves valuable time, assures safe, fast starting in seconds for all internal combustion engines, saves wear on batteries and starting motors in extremely cold climate conditions or after

engines have been idle for long periods.

The Elmco Corporation, Salt Lake City, Utah manufactures a line of crawler tractors and loader equipment that meets the highest standards in the industry. This company's insistence on supreme quality performance is one reason why Chevron Pressure Primer Systems are specified for cold weather operation.

CHEVRON STARTING SYSTEMS assure

rapid starts in the coldest weather ... save you time . . . reduce equipment wear. Chevron starting fuels are available in cans, capsules or cartridges for use in marine craft, trucks, tractors, shovels, air compressors or mechanically refrigerated cars.

For free technical help or information about the various Chevron Starting Systems, just call your local representative, or write any company listed below:



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(Continued from page 15)

of its own producers and consumer At the opening-day ceremony, the Rt. Hon. Reginald Maudling, M.P. and President of the Board of Trade told the British exhibitors not to be afraid of competition from abroad but instead to welcome it, secure in the knowledge of the recognition that their own machines and serv ice had attained. This welcoming attitude to overseas companies was attested to by the presence of \$1 exhibitors from Belgium, France Holland, Italy, Sweden, Switzerland the U.S.A., and West Germany.

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The question of an indoor vs. outdoor exhibition had been debate and resolved in favor of the latter. While an indoor exhibit would eliminate the hazard of bad weather, this was outweighed by several favorable atter on factors connected with an outdoor show. The outdoor exhibit is simple to stage, and more space can be al located to each exhibitor. He can thus demonstrate his product, env Produc abling potential buyers to compan it with those of his competitors Take the many different manufacturers of tower cranes, for instance that were exhibiting. Each machine vertised could be operated, demonstrating its load-lifting capacity in various boom positions. Such maneuvering, o even a showing of the entire ris would have been impossible indoon

The two proving grounds, with a area of 200,000 square feet, wer available to more than 50 exhibitor for demonstrating their machines is action under the same working conditions encountered on a construction job. These dirt areas were u mainly by earthmoving equipme -dozers, scrapers, graders, shovel and loaders.

#### Big site

The big site, 1,800 feet long X 9 feet across its widest point, was colorful demonstration with brightly painted equipment and th flags, bunting, and pennants of the exhibitors. While most of the exhibitors were manufacturers, mai were distributors displaying the products of various companies, whi others were franchise holders of agents for foreign firms. What the

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SEPTEMBER, 1

Oldest rig



Oldest display piece is this 80-year-old Aveling 10-ton steam roller that retired last year after completing a compacting job on the Maidenhead Bypass.



Atlas Copco Airwagon, a self-propelled air compressor. One Ford diesel engine powers both the vehicle and the air compressor.



The Bailey bridge serves as a vantage point from which to watch a Yale tractor shovel demonstrate its ability in the exhibition's proving ground.

isplayed had wide appeal, from tools and equipment used by the mall jobbing builder to the largest heavy or road-building machinery. Big U.S. earthmoving equipment was particularly prominent, with such names displayed as International Harvester, Caterpillar, Euclid, Michgan, Allis-Chalmers, Massey-Fermuson, Ford, Yale Trojan, and John Deere.

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Blaw-Knox had a big stand—5,000 square feet—to show a concrete-mixing plant, two paver finishers, and the Hydrascoop excavator coader.

Caterpillar showed for the first time here its D9G crawler tractor and the 619C tractor-scraper.

J. D. Tractors Ltd. exhibited the John Deere-Lanz 40-hp crawler loader and the 1010 crawler tractor with hydraulically operated angle dozer.

Ford Motors displayed the Fordson power units and various accessories employed in contemporary construction techniques.

International Harvester had on hand the widest range of its equipment ever before seen in Britain, including the products of its allied companies—Drott, Hough, and Wain-Roy.

Atias Copco introduced the Roughrider, a combined unit of a Fordson Major tractor on which is mounted an air-cooled compressor delivering 140 cfm from the tractor's power takeoff. The same firm also exhibited the Airwagon or self-propelled air compressor that employs one Ford diesel engine to run both the vehicle and the AC compressor.

#### Old and new

Oldest rig at the exhibition was the 80-year-old Aveling 10-ton steam roller that had remained in continual operation through the summer of 1960. It did its last compact job on the Maidenhead Bypass for John Allen & Ford Ltd. of Oxford. It was then purchased by Aveling-Barford, given a restoration face lifting, and following the exhibition was retired to a permanent resting place on display at the Grantham headquarters of the orig(Continued on next page)



Photo courtesy of Hercules Powder Company.

## Modern day pyramids with **EIMCQ** Loaders to hold 25-million electron volts in check!

An Eimco 123 Front End Loader is shown building a barricade against Hercules Powder Company's massive Non-Destructive Test Building at Magna, Utah.

It houses a 25-million electron volt Betatron, used to X-ray rocket motors of various sizes to detect possible flaws in the propellent, case bonding, or other components. This barricade protects against possible radiation outside the building, while the Betatron is operating.

The building walls themselves are three-foot thick steel-reinforced concrete. The earth barricade backs this up. It is 54 feet thick at the bottom, tapering to five feet at the top, giving

the building the appearance of a modern day pyramid.

The dependable Eimco 123 Front End Loader easily climbs up to 42° slopes forward or reverse; instantly responds to flip-of-the-lever controls for speed or directional changes and true epin turns; gives the operator unexcelled visibility and faster on-the-go cycles of dig, load, lift and unload.

Get all the facts on the modern Eimco line of crawlers. Contact the Dealer or Branch near you, or write THE EIMCO CORPORATION, P.O. Box 300, Salt Lake City 10, Utah, U.S.A., for Bulletin LE-1097.

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"Advanced Engineering and Quality Craftsmanship Since 1884"

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Valerie and Leila Croft, the Euclid twins. flank Tony Barker, sales manager. The British blondes attracted many visitors to this earthmoving display.



A shot of Scotch in Dave Robertson who. with A. L. Day, represents George Cohen Sons & Co. in the handling of Pingon tower cranes, which are a product of France.



Oriental models, Chi Chi from Burma and Judy Yeap from Molaya, were host-esses for J. I. Case. This Model 1000 crawler is equipped with a 1½-yard side-tipping bucket.

(Continued from preceding page)

inal manufacturer of the unit.

J. L. Case Ltd. introduced its Model 1000 crawler tractor with side-tipping bucket that has not yet been shown in America, according to its London manager, Bernard Alergant.

Flygt International of Stockholm. whose electric submersible numps are also made in America, had its line displayed by Industrial Pumps Ltd. Its array included the new Bibo 4, with a 27,000-gallon-per-hour capacity.

A smaller piece of machinery that attracted the interest of building contractors was the Trembath electrically operated dehumidifier. Designed to extract 5 gallons of water in 24 hours, this dryer is used in drying out new buildings prior to decorating, thus obviating the risk of cracked plaster or warped woodwork. It can be moved about like a wheelbarrow.

Euclid shared a stand with its UK distributor, John Blackwood Hodge & Co. Ltd., featuring a display of end-dumps, motor scrapers. and crawler tractors. Sales manager

Tony Barker played up the t power feature of Euclid with the help of twin sisters, Valerie and Leila Croft. The British blonds models pinned a numbered tag on the lapel of each visitor. Somewhere in the crowd there was someone with a similar number. If the two with like numbers got together, they could each collect a prize at the Euclid stand—a model of one of its machines.

Of particular interest to visitors from the U.S. A. was the aggregation of tower cranes on display. Ten different companies, from England,



## Three-to-two production payoff with Cat power shift 631s

"I get three trips to every two of (another type power shifting scraper) on a half-mile haul," says Arthur Fleming, operator for Armstrong & Armstrong, of Roswell, N. M. They added three 631s to their fleet in February and put them right to work on a road job near Las Cruces. This payoff is typical of other contractors on job after job, where resultsnot claims-do the talking. Check other results on this job.

"Leaving the pusher, I can shift right up to second range within 150 feet," Fleming adds. "I just floorboard it, and the engine winds right up. In a couple hundred more feet I can shift up to third range. It has so much power it's rarely in torque

divider drive (see INSIDE STORY), even carrying a big load in this sand.

"Between the power and the automatic shifting, this is a snap to run. It works great on the fill, too. I have to get an even spread to meet state specs (4-inch compacted lift). I just head down the fill and watch the scraper to dump evenly. If it hits a soft spot, the machine shifts down automatically and keeps right on going. I don't have to worry about shifting and the scraper doesn't bog down."

#### Power automatically matched to the job

What's the difference between Cat power shift transmissions and ordinary power shifts? Basically, the Cat unit matches power automatically to job conditions. It's the only unit that gives you a torque converter's ability to balance speed and torque to suit underfoot conditions, but it cuts it out for highspeed operation on the haul road to give you more efficient direct drive and overdrive. Results: faster cycles and higher production.

But job-matching power and efficient high speed are just two of the advantages designed into the power shifting 631s. Full unit construction allows every major component to be serviced without disturbing adjacent units. For example, the torque

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SEPTEMBER, 1

Prance, Germany, and Sweden, had riss in operation, all maintaining that their equipment was of the latest and best design. Another attraction, also not commonly used in America, was the centrifugal concrete mixer. Several makes of this pan mixer were on display.

#### Deemed profitable

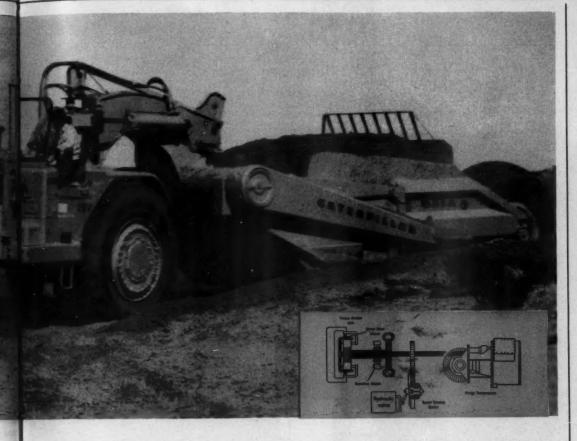
A spot check of exhibitors indicated satisfaction with visitor traffic, general attendance, and sales. Some rigs intended for display were sold prior to the opening of the exhibit. Many were sold to contractors who requested delivery immediately after the show closed. Negotiations between exhibitors and buyers were carried on in small portable buildings or in trailer caravans. All carried the makings for a whisky and soda, gin and tonic, or tea. usually served by an attractive female who might be a home-office secretary or a model hired for the length of the exhibit.

The Exhibition will be next held in the summer of 1963. THE END

New York has 56 per cent of its Interstate System open to traffic.



CONSTRUCTION IS NEARING COMPLETION on the new Bethlehem Steel Co.-Homer Research Laboratories atop South Mountain, Bethlehem, Pa. The new facilities, named for the company's chairman and chief executive officer, Arthur B. Homer, cost in excess of \$25 million. Five structures containing 339,868 gross square feet of building area have been completed, and two others are under construction. The various buildings occupy nearly 100 acres of the 1,000-acre tract.



divider transmission is removable without disturbing the engine.

#### 31 MPH+smooth ride gives high usable speed

The 631A, powered by a turbocharged, after-cooled 420 HP engine and carrying 28 yds. heaped, has a high usable speed of 31 MPH. Smooth ride is important in being able to use this speed. Bill Botwinis, chief engineer for Armstrong & Armstrong, commented, "I'm amazed the operators can stay on these machines as fast as they go over the rough spots. They slow down the other machines, but not the 631s, They just don't bounce so much."

Want more proof how the 631 can outproduce, at lower cost per yard, any other machine in its class? See your Caterpillar Dealer!

Caterpillar Tractor Co., General Offices, Peoria, Ill., U.S.A.



### INSIDE STORY on the Cat power shift transmission...nine speeds with just three shifts

Cat power shift transmissions for wheel tractors match power to job conditions by automatically shifting—up or down—through three types of drives in each of three selected speed ranges. Results: nine speeds with just three shifts.

A range transmission mounted on the rear of the machine is operated by a single control lever. This one lever gives you three forward ranges, reverse, neutral and a special load range.

Automatic shifting is accomplished in the torque divider unit by a simple mechanical speed sensing device and a hydraulic valve actuating clutches. The 631 starts moving in torque divider drive, a combination of torque converter and direct drive. As speed picks up, the hydraulic valve engages a clutch to shift from torque divider drive to direct drive, locking the converter out of the system. At a higher RPM, a second automatic shift takes place—from direct drive to overdrive. If the machine slows down, this process is reversed . . . giving automatic downshifting. A shift indicator (tachometer) shows when to change speed range up or down as needed.

To keep the machine at top production, just keep the accelerator floorboarded all the time. Then you'll always have the right speed and power for the job you're doing—take full advantage of the transmission designed for the machine you're using.

For more facts, use Request Card and circle No. 262

#### West German producer sets up American branch

■ An American branch of Friedrich Wilh. Schwing Co., West German manufacturer of construction equipment, has been established in Rockford, Ill. The new facility, recently incorporated under the name Schwing-American Corp., will offer national distribution of Schwing products, including the climbing crane, hydraulic concrete pump, pneumatic concrete placer, \*\*excavator-loader, passenger and material hoist, and safety winch.

A related enterprise, AirWay Concrete Placement Corp., is also being set up at the Rockford branch.

#### Parsons acquisition

■ The Ralph M. Parsons Co., engineering and construction firm of Los Angeles, has purchased Anaconda-Jurden Associates, Inc., the New York City engineering and industrial design subsidiary of the Anaconda Co. The new firm, to be called the Parsons-Jurden Corp., will be operated as a Parsons subsidiary.

Wilbur Jurden, the former president of Anaconda-Jurden, will retain the same position with Parsons-Jurden. Raiph M. Parsons will be chairman of the board of the company; Milton Lewis, executive vice president; Harry P. Broom, vice president; and V. E. Bradford, vice president and treasurer.

### lowa Highway Commission opens office addition

■ Dedication ceremonies were held recently at the new Iowa State Highway Commission central-headquarters office building in Ames, Iowa. Work on the new office addition was started in April, 1960. The 3-story structure, designed by Dougher-Frevert-Ramsey, architects and engineers of Des Moines, adds over 60,000 square feet of working area to the old building.

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## Steel work adapts methods to rugged site The bulk of the problems arising in construction of the Taridge over a deep canyon along the Oregon coast line he

Crews on high-level truss span make use of job-site conditions to complete Thomas Creek Bridge he bulk of the problems arising in construction of the Thomas Creek Bridge over a deep canyon along the Oregon coast line have their roots in the site.

The 848-foot truss span, supported by two steel towers, rises 300 feet above concrete piers on the canyon floor to become the highest bridge in the state. There is a dangerous slide area along the south side of the canyon, and this influenced the final design of the bridge, making it necessary to span the entire slope. Problems were posed by the need for moving materials in and out of the canyon. Weight on the bridge had to be carefully controlled because of the long cantilevers from which steelwork was erected. Weather often hampered construction, and high winds that whistled up the canyon often made the site a wind tunnel in which it was impossible to control the steel sections that had to be lifted by crane. Falsework and bridge structure are designed to withstand winds up to 108 mph and gusts up to 120 mph.

(Continued on page 24)

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Crews guide bridge, which motorists alor a 37-mile stre between Brod field connecti 1/4-inch high-s



NEW60 HP.

WISCONSIN

MODEL V-460D

WITH

VALVE-IN-HEAD DESIGNI

Now Wisconsin offers you more power . . . amazing compactness...greater efficiency and economy . . . and simplified upkeep.

On all counts, the new V-460D is the most compact 60-hp heavy-duty air-cooled engine on the market. It is precision-built for all-weather dependability and long life in severe applications. And it's designed to bring you-savings as soon as you specify it for your equipment or job.

Weighing only 521 pounds, the V-460D requires less structural support. Thus you can get equipment which is lighter and easier to handle — has greater

payload and work capacity — and costs less to own and operate.

Valve-in-head design and higher compression bring you greater fuel economy with regular gasoline. They provide cooler and more efficient engine performance, and slash upkeep. Even removing a cylinder for piston or ring replacement takes only minutes!

Check its high-torque lugging power—its economical operation—and its simplified maintenance. Then specify it for your equipment or operation in the 36- to 60-hp range. Get Bulletin S-282. Write Dept. C-21.

#### CHECK THESE FEATURES:

- Center main roller bearing and tapered roller end main bearings to
- Stellite-faced exhaust valves and positive rotators for up to 500% ionser valve life
- Controlled pressurized lubrication for full-time oiling to all working
- Automatic protection against overheating and servicing neglect.
- 12-voit electric starter with distributor ignition
- Wide range of optional equipment and accessories.



### WISCONSIN MOTOR CORPORATION

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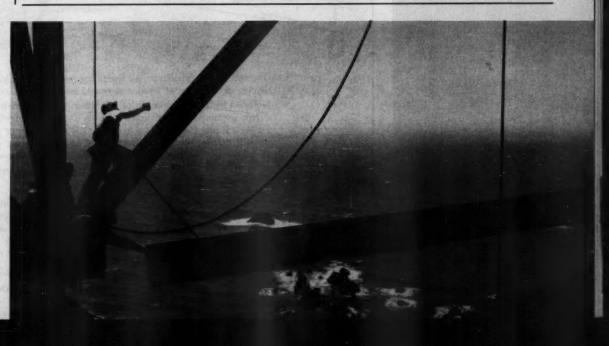
World's Largest Builders of Heavy-Duty Air-Cooled Engines

1-341

For more facts, use Request Card and circle No. 263

Working on a cantilevered section of the 848-foot truss span along the coast highway in Oregon, a 25-ton stiffleg with 70-foot traveler and 15-foot jib lowers steel for the north tower. The Pacific Coast Division of Bethlehem Steel is handling work from the south abutment because of difficulties in transporting materials to the opposite side. At this point, the span is being cantilevered 159 feet to the second tower location.

Crews guide steel into place for the bridge, which opens new Pacific vistas to motorists along the coast and eliminate a 37-mile stretch of the present U. S. 101 between Brookings and Gold Beach. Allifield connections are being made with %-inch high-strength bolts.



A silhouette of man and steel is made by a member of the Bethlehem team as he stands on a chord high above the Pacific to guide a column into place.

Bethlehem Steel's Pacific Coast Division is constructing the span, which is part of a new highway hugging the scenic Pacific coast line and eliminating a tortuous 37-mile stretch of U.S. 101 between Brookings and Gold Beach.

#### Change made

Originally, plans called for an 800foot steel arch span, but preliminary surveys showed the south canyon wall to be too unstable to support foundations for this type of structure. The new design allows the bridge to span the entire south slope, and this determined the final span and tower arrangement of the bridge. Both towers are anchored

159 feet apart at the bottom of the canyon, with the south span of the bridge reaching 371 feet from town to abutment. The north span is 265 feet long. Towers and truss spans which are 30 feet deep, form a rigid structural frame to support the 30 foot-wide roadway.

#### Work from one abutment

Because of difficulties in transporting materials to the north side of the canyon, work progressed from the south abutment. A 25-ton stiffe derrick with 70-foot traveler boom and 15-foot jib handled the steel erection.

Getting materials into and out of the deep canyon presented some dif-

The bri the south falsework another 5

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nculties, but these were overcome by walking derrick and crew along the steel truss span, moving out onto each section as it was erected until the bridge was cantilevered above the position of the next falsework or tower footing. Steel sections were then lowered from the bridge to the footing so that falsework bents and supporting towers could be built up from the canyon to meet the bridge. as each support was completed, it carried the weight of the cantilever during construction of the next sec-

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#### **Bridge moves out**

The bridge spanned 53 feet from the south abutment to the first falsework tower, then cantilevered another 53 feet to a second falsework tower resting on timber piling. Piles were driven by the derrick resting on the end of the truss. When the second falsework tower was completed, the first one was removed.

The truss span was cantilevered 106 feet from the second falsework tower to the third, a 180-foot-high tower composed of steel sections that later formed the upper half of the north and south faces of the permanent north tower. The two tower faces were erected on 4-foot 4-inch centers and bolted together with short steel diaphragms. Dead loads and wind loads on each leg of the tower were designed to exceed 650 tons. This falsework tower rested on 20 Bethlehem 10-inch, 42-pound steel piles driven about 25 feet below grade. Each pile was designed

**GREENVILLE RIPPER FOR IH TD-15, 20, 25** 

to support 62 tons of dead and erection loads.

Piles were driven to hold the falsework tower securely in the unstable shale fragments and fractured conglomerate that make up the south slope of the canyon. Some 30 feet of overburden, including trees and debris from previous slides, was first removed, then level benches were hand-dug and bulldozed into the canyon wall so that the tower could be erected.

Steel erection extended the bridge another 159 feet to the south tower location, where steel sections were lowered 300 feet from the bridge to the canyon floor by the traveler boom perched on the end of the 159foot cantilever. This tower was erected in three weeks.

The two main towers rest on concrete piers that extend about 20 feet above and 40 feet below grade level. Towers are secured to the piers with six anchor bolts, 2% inches in diameter and 12 feet long, fastened to each of the four legs of the tower. When the first tier of steelwork for the tower was erected, the steel was checked for alignment, leveled, and plumbed; connections were tightened, and base plates grouted.

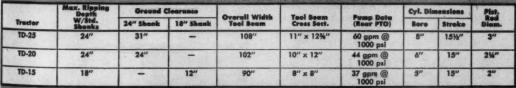
Setting the first sections for the tower legs was a tricky operation. Since the width of the towers tapers from 80 feet at the base to 30 feet at the top, sections had to be set to lean at the proper angle. This angle made it difficult for the erection crew to position the legs on the anchor bolts.

The north tower was erected about half way with steel lowered from the bridge. Then the traveler was moved back to the third falsework tower. The falsework was dismantled to provide the steel with which the north and south faces of the bridge's north tower were completed.

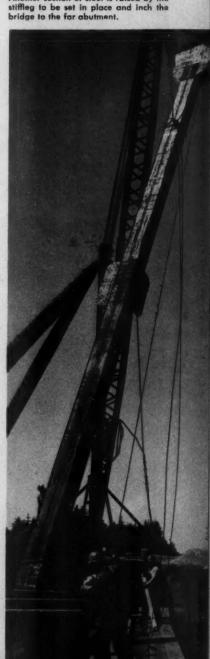
With the completion of the two

Another section of steel is raised by the stiffleg to be set in place and inch the bridge to the far abutment.





GREENVILLE





The stiffleg is kept supplied with steel by a materials car. Material storage on the span was held to one ton of bolts because of the long cantilever and the need for controlling weight.

Steel is swung out, carefully guided by a crewman; Bethlehem men below stand ready to secure it in place.



(Continued from preceding page)

main towers, another section of trusswork was cantilevered 159 feet toward the north abutment. At this location, the second falsework tower on the south slope was dismantled and re-erected on a shelf blasted out of the north side of the canyon. When this final tower was in place, the final 106 feet of the bridge was completed and all falsework was removed.

#### Material delivery

Because of the long cantilevers from which the steelwork was erected, weight on the bridge was carefully controlled; material storage on the span was limited to 1 ton of bolts. Structural steel had to be brought from the abutment to the derrick by a  $33 \times 20$ -foot material car, and this required a careful sorting of material by the yard gang, working on the approach to the bridge, to make certain that all pieces arrived on the job in the proper order for erection.

The material car was pulled back and forth along the length of the bridge on rails formed by two bridge stringers on 14-foot 10-inch centers. The car was controlled by a winch located on the bridge abutment. Winches controlling the traveler crane were also located on the abutment rather than on the bridge in order to reduce the weight of the crane.

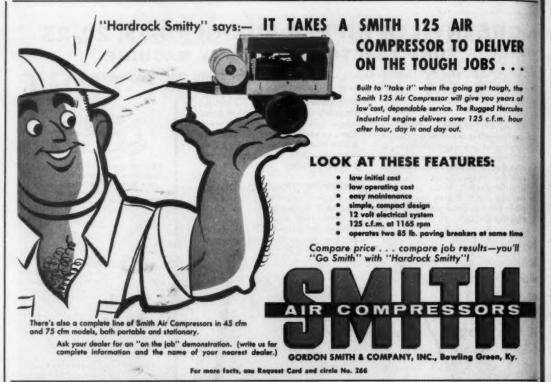
Five manila safety nets, 30 × 48 feet, were hung from %-inch Beth-

lehem wire rope strung across the canyon prior to the start of the job. Some 2,400 feet of wire rope was used in one piece that extended across the canyon, around the north abutment, and back across the canyon.

#### Bridge steel

The bridge is composed largely of welded-plate steel sections. The bridge stringers are Bethlehem 24 WF 74 sections, while the floor beams are made up of 36 WF members 30 feet long. Diagonal bracing on the support towers consists of 18 WF 49 sections. These, plus 8 and 9-inch structural tees on lateral members of the bridge and internal diagonal bracing, are the only rolled

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new, fast mounting and dismounting. Hydraulic pump powers both hoe and loader . . . allows alternate operation of either without stops to switch over.

for Oliver 550 tractor-Model 568 loader handles 1/2-yd. bucket...provides over 3700 lbs. breakout . . . will carry to 3000 lbs. It gives you power to move in, dig effectively where other rigs in class quit. Tractor features fast-reverse dual range.

## **FORK LIFT**

Oliver 551 fork lift hoists 5000 lbs. to 12-ft. height. Offers choice of 5 towers for lifts to 21 ft. Pay only for lift height you need now, trade in for higher tower when the job will pay for it. Unit combines good mobility—even in roughest footing.

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Look for this sign, new symbol of prompt,

dependable service and genuine Oliver parts.





(Continued from page 26)

members in the construction beams on the bridge are made A242 steel to increase strength a reduce the weight of the structure

When the structure is complete it will contain 1,730 tons of stru tural steel. Shop connections riveted, welded, and bolted, and field connections are made will Bethlehem %-inch high-strengt

John Quiner II is resident engineer on the job for the Oregon State Highway Commission. Bob Cunning ham is assistant resident engine and the engineering assistants at th site are Ed Klinkenberg and Le White. Bethlehem's superintendent erection is Joe Kaylor.

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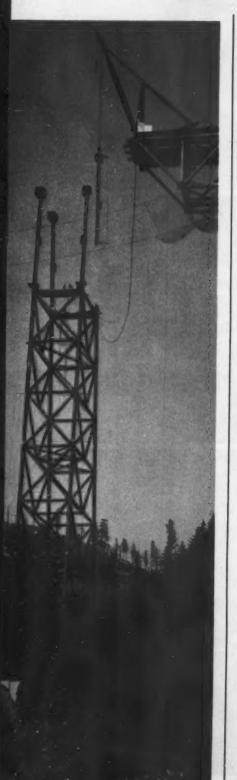
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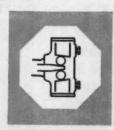
To meet the growing need for more versatile, more compact, more dependable braking equipment in off-highway operations, Rockwell-Standard® now presents a completely new concept in brake design.

This new brake is specifically engineered for use on scrapers, prime movers, earth and rock wagons, dump trucks and similar construction vehicles. Available in 17, 201/4, 22 and 26-inch diameters and in 4 to 10-inch widths.

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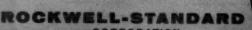
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Results in improved braking performance and lower operating temperatures. In Dual-Actuation design, both shoes do an equal amount of work. Balanced shoe-action assures more dependable service; faster, surer stops.



#### HYDRAULICALLY OPERATED

New hydraulic cylinders offer more compact de sign and increased mounting flexibility for better protection. External cylinders, located outside of drum, eliminate heat damage and overheating of fluid. For air-over-hydraulic systems, at volume requirements are considerably less. A tuation time is reduced, with faster response of hydraulic system. The Stopmaster Brake is w suited for straight hydraulic, air-over-hydra or vacuum-over-hydraulic operation.





Ashtabula, Ohio

# SIX FLAGS

Carpenters shake their heads as they build—or at least put together—a burned-out bridge along the stagecoach route of the new amusement center, "Six Flags Over Texas," which recreates six periods of history in the state. Skills had to be disregarded in the interest of authenticity when building was under way.



**B**ack in the 17th century, building a log cabin presented no problems. But in an age of steel and concrete, it challenged the ingenuity of both contractor and designer.

at the

Carpenters had to relearn the forgotten art of swinging an ax. They had to place log on log and end up with a plumb wall. Designers had to make the interior of the cabin appear three centuries old, yet find a place for air conditioning.

These were some of the complexities faced by the builders of a \$10 million recreational center that is Texas' answer to Disneyland. Located on the turnpike, halfway between Dallas and Fort Worth, the family entertainment center contains many novel rides and glimpses into the history of the old Southwest. "Six Flags Ower Texas," as the project is called, depicts life in Texas during six periods of its history—under the flags of Spain, Mexico, France, Texas, the Confederacy, and the United States.

Marco Design of Los Angeles (also the designer of Freedomland in New York City) kept a staff of six men on the project to supervise the construction. A large field force was necessary, for much design work was done at the site, and the unique construction required "show-me" supervision. Great Southwest Corp. of Dallas is the owner of the project, and its forces did most of the construction.

#### Logs to thin-shell concrete

On the 105-acre site, there are fifty-odd structures, from log stockades to hyperbolic paraboloids. Most (Continued on next page)



Masons had to learn new tricks and ignore past training to build these "ruins" of an early Texas mission. Old-time frontier stores are framed by the arch.

For more facts, use Request Card and circle No. 270

# Can your loader handle these six jobs?...



Grade with meter grader accuracy using the 4-in-1's "carry-type scraper" action—as this owner is doing, fine-grading a parking area to exact specifications. Operation "boils in" excess distortions of the carry temporal o



Exclusive 4-in-1 clem action lets you grab, lift, and load heavy, unwieldy objects like stumps, boulders, and concrete slabs-without any need of hand work. You clamon, lift, and release the load, hydraulically.



Simply epon the clam, set "blade" segment to cut—and the 4-in-1 doubles for a full-sized 'dozer in capacity, working range, and control accuracy. Only "hand work" to do is move the hydraulic control lever.

## SURE, if it's a Clam Action 4-in-1!



Clem-handle sticky materies with the 4-in-1-even in conditions that clag old-type buckets. Exclusive 4-in-1 bottomdumping uses the gravity pull and cldm "pull apart" action for positive selfcleanout!



Only clam-action 4-in-1's provide back-drag action — speeding masonry wall demolition here — also widely used for bank-grading, ditch-cleaning, and pulling down materials, quickly and efficiently.



Place the open clamshell over builder's scrap, rubble, isolated piles of loose materials—close the clam to fill the bucket, instantly, without "chasing" the material. And without any hand work, whatever!

Why limit the variety of jobs and conditions you can handle? Why limit your income to what an old-style "single-action" loader can earn you? Why be satisfied with anything less than 4-in-1 "equipment spread" utility—that multiplies profit-making capacity? Get positive proof! Let your International Drott Distributor demonstrate the 4-in-1 size you need! Five sizes available from ¾ to 3 cubic yards.

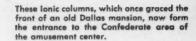


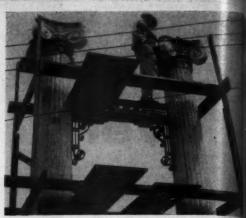
International Marvester Company, Chicago 1, Minois Brott Manufacturing Corp., Milwanico 15, Wisconsin

INTERNATIONAL DROTT



Workmen had to learn how to swing an ax to build this replica of Fort St. Louis. Unlike the original, however, this structure has hickory posts em-





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are built of new wood to duplicate the architecture of a particular era. Some have been salvaged from older existing buildings. Exteriors are wood or a rough-finish stucco. Roofers tried their skill at putting down shingles, thatch, tile, or plies of tar

To build the ruins of an early Texas mission, masons had to ignore their training in laying rock in a straight line. They set the natural field stone so that the structure looked centuries old. With the coaching of Marco's men, the masons put together a realistic ruin.

To furnish the interior of the buildings, the architect's men went scurrying about the Southwest, searching in antique shops, salvage yards, and ghost towns for authentic furnishings. On one expedition, they robbed a bank of its safe and tellers' windows. In another prairie town, one of the architect's men walked into an old-time saloon. First he bought a drink; then he bought the bar. It was the last drink served over the bar; at the amusement center, only soda pop will pass over its scarred top. But that's life in the simulated Southwest.

#### Astrolift from Switzerland

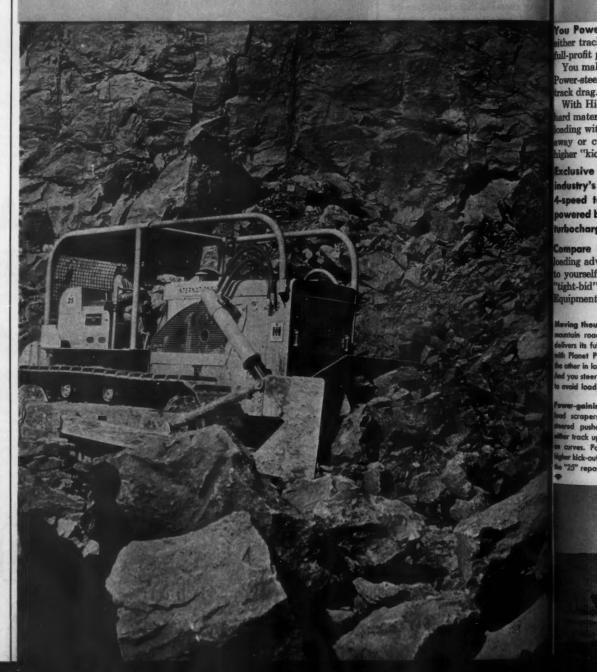
The designers even went abroad for material. The aerial cable cars and supporting towers were manufactured in Berne, Switzerland. The steel box towers (up to 50 feet in height) had to be cut in two for convenient shipping. The 1,050-foot-long aerial ride will give visitors a bird'seye view of the entire park.

A mile-long narrow-gage railroad encircles the amusement center. Another shorter loop carries visitors through the Spanish section. The track and cars were brought from a sugar plantation where they once carried cane to a mill. The cabs were rebuilt at the carpenter's mill on the project.

The well equipped mill played an active part in many of the phases of construction of the amusement center. The skilled carpenters built entire fronts of the ornate buildings in the mill. In cutting the pieces, the men worked from full-scale cardboard patterns designed at Marco's Los Angeles office. When a front was assembled, it was trucked to the site and set into a building as a unit.

Many bridges pass over the water-

TD-25'S Full load, full pass PL ends load-dropping, track sto





A painter puts the finishing touches on a railroad car that will be used at the site. The train, once used to carry cane to a mill on a sugar plantation, was rebuilt in the carpenter's mill at the job site.

Modern construction techniques came into play during work on the "Modern America" section. This thin-shell concrete hyperbolic paraboloid will shelter a refreshment stand. It was easier to build than log structures because crewmen had put up similar "umbrellas" on other projects.



## SS PLANET-POWERED PUSH

## ck stopping steering losses

You Power-steer the International TD-25 by power-shifting either track. Full-time "live" power on both tracks, gives you full-profit production!

You make full-load turns without spillage — because Planet Power-steering eliminates load-spilling, load-limiting "dead-

With Hi-Lo on-the-go power-shifting, you shift down, to dig hard materials — shift up, to "run" with the load. When pushloading with the "25," you maintain solid contact on straightaway or curve — to speed heaping the bowls and get gearhigher "kick-outs"!

Exclusive Planet Power-steering makes the TD-25 the industry's only power-shifted 8-speed gear-drive, or 4-speed torque-converter tractor. And only the "25" is powered by the free-breathing, dual-valved 230-hp DT-817 turbocharged International diesel!

Compare bulldozing yardage delivered — time the pushloading advantages of the Planet Power-steered TD-25. Prove to yourself how "live-track" TD-25 push can multiply your "tight-bid" profits. Let your International Construction Equipment Distributor demonstrate!

Moving thousands of tons of outcrop shot-rock for mountain road right-of-way, this TD-25 picks up and delivers its full loads without sluing or slipping. Reason: with Planet Power-steering you run one track in high, the other in low speed range to equalize offset loading. And you steer with full power on both tracks full time — to evoid load-dropping interruptions!

Pewer-geining Planet Power-steering helps you heapland strapers in record time—right where clutchteered pushers lose half their push! Power-shifting when track up or down keeps solid push-block contact an arress. Power-shifting up, on-the-go, gives gearlight kick-outs than ordinary. And with 7.5 mph reverse, the "25" repositions faster than slower rigs!

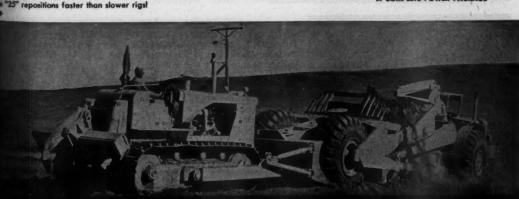


"Hanging a bench" on a mountainside, the TD-25 operator either upshifts the bank-side track — or downshifts the outside track. Then he makes full cuts under full power without "bank-nosing," rear-end skidding, or "lever fighting."



International' Construction Equipment

International Harvester Co., 180 North Michigan Ave., Chicago 1, II A COMPLETE POWER PACKAGE



ways in the project; one of them—on the stagecoach route—is designed to resemble a burned-out bridge, and carpenters had their problems building it. Supporting logs and deck timbers sag in all directions. Said one carpenter as he finished pounding the last rusty nail into a broken board, "This will never pass inspection."

#### Modern air conditioning

Many of the bridges and buildings are replicas of pioneer days, but there's nothing old-fashioned about the air conditioning. Some 300 tons of it keep the visitors cool. Even the waiting lines for the rides are air-conditioned. The people wait under partially enclosed walkways, and cold air is blown down on them from above.

A complicated network of utilities serves the project. Telephone and electric lines are underground. Involved piping systems provide water for irrigation, fire protection, and drinking.

A fantastic array of electronic equipment controls the motions of the automated animals indigenous to the area. Many of the thrills on the rides require complicated electric controls. On one of the boat rides. the boat is fired upon by a riverside fort. As the cannons blast away, spouts of water leap into the air around the boat. The cannon's roar is duplicated with compressed air: the powder flash with electric sparks. The water spouts are produced by air released by hydraulic ram jets. The entire sequence is automatically controlled.

#### Personne

Randall Duell of Marco is in charge of the design of the project. Charlie Pafford is construction engineer for Great Southwest Corp., and Charlie Thompson is operations manager. Luther Clark is vice president of construction for GSC and the amusement center. Angus C. Wynne, Jr., is president and developer of the corporation and Six Flags over Texas.

THE END

A calendar of coming conventions, of interest to our readers, appears on page 55 of this issue.

For more facts, use Request Card and circle No. 271 At Memphis airport tunnel contractor uses

## **Ganged forms** for top production

Workmen place reinforcing steel after a 22 x 17-foot ganged form of Symons 2-foot-wide panels has been set for the 791-foot Winchester Road tunnel under the new north-south runway at the Memphis airport. This use of forming makes it possible for 250 feet of the 17-foot-high walls to be completed in a 5-day week.

An efficient forming system means high production for the contractor building the vehicular tunnel at the Memphis Municipal Airport.

Sam P. Maury Construction Co., Memphis, gangs the individual panels to form a 20-foot section of wall at one time. By handling the  $22 \times 17$ foot form as a unit, forming and stripping times are greatly reduced. This short cut allows the concrete crew to complete 250 feet of 17-foothigh wall in a 5-day week.

#### A \$20 million expansion

The 791-foot-long double-barreled tunnel is part of a \$20 million expansion and modernization program at the airport. Construction, which started in the fall of 1960, is moving at a fast pace. Fred Young, a Memphis contractor, has already completed the 116-foot-high control tower. This fall, H. N. Rodgers & Sons Co. will finish the grading for a new runway. (See page 78.) The paving contract for the 8,400 × 150-foot runway will shortly be under way. J. A. Jones Construction Co., Nashville, is at work on the 2-story terminal building and the Y-shaped concourse. By early 1963, the runway and buildings will be ready for the jet age.

#### Bridge for airplanes

Not often seen in airport construction is the reinforced-concrete tunnel at this field. Automobiles go through



A section of forming is being set in place by an insley Model WB 1½-yard crans. This form, for the outer wall of the 5-foot-wide ventilation corridor, will be placed opposite the form being worked on by the crew.



it. Planes go over it. The tunnel ries the four lanes of traffic on r cated Winchester Road under the new north-south runway.

Designed by Allen & Hoshall, consulting engineers of Memphis, the double-box tunnel has two fan hous and a pump house as an integral part of the structure. The concrete-walled houses tie in with one end of the tunnel and are completely under-

For most of its length, the tunnel contains five vertical walls. A 17. foot-high 2-foot-thick center wall is flanked on both sides at distances of 34 feet by side walls. These are 17 feet high and 1 foot 8 inches thick At 5 feet out from each side wall is a somewhat smaller wall, 15 feet high and 1 foot thick. It forms the outer

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## EIGHT TESTED-LORAINM





Two Lorain Moto-Loaders, Model ML-309, with 9000 lbs. or are shown loading shot rock at the quarry face. One is equip bucket, the other with a 4-yd. bucket.

wall of the ventilation corridor. The corridor runs for about 500 feet of the total length of the tunnel.

The floor of the tunnel is a 10-inch reinforced-concrete slab. The flat-slab roof is 2 feet thick and supports about 3 feet of cover. The entire tunnel is waterproofed on the outside with a membrane waterproofing protected by a fiberboard cover.

#### **Gang forming**

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Por forming the walls of the tunnel, the contractor made up forms of two sizes—a 22 × 17-foot form for the center and side walls; a 22 × 15-foot form for the corridor walls. The men made up sufficient units to form 100 feet of wall.

symons steel-backed plywood panels were ganged together to make the

Five walls are being constructed for the double-barreled vehicular tunnel: a center wall, the side walls, and the walls for the ventilation corridor. The Insley in the excavation aids in setting forms. In the foreground is an International TD-14 with loader bucket that is used for all kinds of dirt moving.

forms. The 2-foot-wide panels were braced with three horizontal lines of double  $2\times 6$  wales. For additional strength necessary for lifting, double  $2\times 6$  strongbacks were clamped to the wales.

Once the forms were made up, the wall work moved swiftly. The contractor's Insley Model WB 1½-yard crane set the inside form, and men braced it in three places. After the



## NMOTO-LOADERS' CHOSEN

Walter C. Best Inc. at Chardon, Ohio, tested eight different makes of front end loaders, including Lorains, in their quarry. After several thousand hours of carefully documented, on-the-job operation in 1960, they unhesitatingly chose Lorain Moto-Loaders. Two Lorain Moto-Loaders ML-309 have been handling all the production on this operation since January 1961 without a single hour of down time. Much of the 200,000-ton yearly output of silica sand and aggregate is handled 2 or 3 times.

#### Replaces 8 pieces of other equipment

The two Moto-Loaders replaced a whole fleet of other types of equipment and made it possible for Best to revise completely their production procedures.

#### Less than half the capital needed

Because less equipment is needed, less capital investment is required. Best claims they reduced their capital needs by more than 50% by turning to the Moto-Loader method.

#### Man-hours reduced 75%

Labor costs went down drastically after the Moto-Loaders were installed. Man-hours were reduced from 120 to 30 a day.

#### Down time eliminated

Robert A. Silvernail, Best's Superintendent, says, "The rugged dependability of these units saves us hundreds of dollars in down time a year. They simply do not break down, and maintenance is confined to lubrication and oil changes. This can spell the difference between profit and loss on many an operation. There has been no down time for any other reason."

#### Versatility is invaluable

Mr. Silvernail continues, "We don't believe there is anything these Moto-Loaders can't do. They have loaded trucks with the shot rock, stockpiled materials, stripped overburden, cleaned out a swamp, moved a 2-ft. layer of rock to grade for a road, dug excavations, moved trees and heavy machinery, cleared snow, pushed and towed trucks and rail-road cars, charged bins and substituted for winches. You name it and Moto-Loaders do it for us. They are invaluable. Either machine is ready at any time to do the work of four

different ones, at four different places and you know that this kind of versatility makes them pay and is saving you money."

#### One Moto-Loader double-shifted

During eight months of the test period one Moto-Loader was double shifted for a total of 2300 hours of service and loaded out 100,000 tons of stockpiled material to trucks in that period.

#### Moto-Loaders balance important—Drivers find them less tiring

The balance of power, weight and control contributes heavily to the performance of these Lorains. "The ML-309's are splendidly balanced, even at full load, which makes them easy to operate. The drivers and them less tiring, and this contributes to the men's efficiency and safety on the job," is the way Mr. Silvernail puts-it.

#### Other features, too

To get the kind of dependable, cost-cutting performance experienced by Best requires many advanced design, construction and operating features. You don't out-perform seven other top brands of loaders without real, solid reasons. Here are some of them.

One-foot control. Control of selection of forward and reverse and acceleration is done with just one foot. Both hands free for steering and other controls.

Four-speed, full-power shift gives continuous straightthrough, full-power shifting from 1 to 4 without stopping for selection. This Lorain Moto-Matic Transmission, plus torque converter speeds up cycles.

"Safety" arms, S-shaped for greater reach, provide full side visibility at all times. The bottom edges stay below cockpit sides at all times for complete safety.

Better tractive effort is obtained through 4-wheel drive using planetary axles with high traction differentials. Torque is kept at the ground where it belongs.

Want to know more? Why not see your nearby Moto-Loader dealer for all the reasons? Or arrange a demonstration so you can see for yourself what a Lorain Moto-Loader can do. You'll be glad you did.

THE THEW SHOVEL COMPANY, LORAIN, OHIO

ironworkers had completed setting the steel, the matching wall form was set and tied across.

#### Concretin

Concreting the wall proceeded in 20-foot sections on a skip-and-fill-in pattern. Batching was done at the site by the contractor, and a Rex paver, stationed on the bank, mixed the 12,000 cubic yards of concrete for the tunnel. Located on the floor of the excavation, the 1½-yard crane bucketed the concrete from the paver to the wall forms.

With concrete being placed at the rate of 6 feet per hour, the larger form section required about three hours of concrete work. Setting the forms and steel took four hours for a crew of three carpenters and three ironworkers. At this rate, the crews were able to put out 250 linear feet of wall per 5-day week.

The plastic-coated surfaces of the plywood forms added greatly to their durability. The superintendent estimated that most of the forms would be re-used 40 times in the course of building the walls. On the completion of the job, he figured the individual panels would still have a lot of use left in them.

Forming of the walls of the pump and fan houses was accomplished by using another patented system. The Gates forming system makes use of



Pump house and fan house are formed with the Gates system, which makes use of 4 × 8 plywood panels backed by %-inch steel rods on 10-inch centers. Steel ties connect to the rods.

## LORAIN

DOES MORE FASTER • FOR LESS PLANTS in Lorain and Elyria, Ohio. PRODUCTS—Power shovels, cran-

and hoes on crawlers from 4-to 2½-yard capacity Cranes from 7 to 80 tons ... on crawlers, and as rubber tire Moto-Cranes, and Self-Propelled Cranes - Rubber tire front-end Moto-Loaders in 6,000-lb., 7,000-lb., and 9,000-lb. operating capacities.

OUTLETS—Lorain products sold and serviced by 249 distribulor outlets throughout the world.



(Continued from preceding page)

%-inch steel rods to back the 4 × 8foot plywood panels, Cross ties loop around the removable steel rods. The The Insley ¾-yard dragline working at the end of the excavation loads material into a Euclid bottom-dump. Excavation went down 20 feet.

versatile forming system worked well for the windowless walls of the structures.

To form the 2-foot-thick concrete roof of the tunnel, the contractor will make up rolling platforms of tubular scaffolding. The steel scaffolding will support wood frames. The superintendent anticipates building enough forms for 160 feet of full-width tunnel. Since the wheels of the scaffolding require a smooth, hard surface, the floor of the tunnel will be placed before the roof.

Some 86,000 cubic yards of dirt



came out of the tunnel excavation.

Early work centered on the sheet-pile excavation of the pump house. This wet hole went down 45 feet and took a lot of pumping to keep it dry. The main tunnel excavation, however, re-

Contractor's super Roy Stockwell and Nat Dunn, field rep for designer Allen & Hoshall, compare ways of getting around on the job. Dunn, who tore out three transmissions in his car while covering the rough terrain, now rents a horse from a nearby stable. He also keeps an eye on the runway grading job for his firm.

> quired no sheet piling and was conparatively free of water. Dragina excavated the hole to a depth of about 20 feet, with sides on a 1 to 1 slope. The material was loaded has Euclid bottom-dumps.

#### Personnel

For Sam P. Maury Construction Co., Roy Stockwell is superintendent and Ray Manley is the engineer, F. Allen & Hoshall, Matt Bonner is the project engineer and Nat Dunn is the field representative.

THE I

ONE

ON

#### Protected crusher motors speed gravel production on aqueduct-tunnel job

■ A 2-stage crushing, screening, and washing unit designed to supply 20 tons of specification gravel aggregate per hour has been giving trouble-framotor performance 16 to 17 hours a day in temperatures ranging from 2 to 100 degrees. Built by the New Enland Road Machinery Co. of Soul Boston, Mass., the unit will supply 500,000 tons of gravel for lining the 8-mile Wachusett-Marlboro aquedus tunnel that is being constructed near Boston.

Such rough service puts the 11 drive motors (ranging in capacity from a to 75 horsepower) on equipment and conveyors to a severe test. But newtype open protected motor design, developed by The Lincoln Electric Ct. Boston, has effectively eliminated failure problems due to abrasive dut and weather.

Protected construction guards the damageable parts of the motor. States windings are impregnated and encapsulated with a thermosetting plattic. Bearing housings are sealed from contaminating foreign matter with neoprene slingers outside and dust caps inside. Welded pressed-state frame and end bells are finished a vinyl base primer and acid-resistant paint.

The \$17 million tunnel project in the Metropolitan Boston water-suppl system was contracted to the Juventure of Perini Corp., Framingham Mass., Walsh Construction Co., In York, N. Y., and Morrison-Knut-Co., Inc., Boise, Idaho.

The tunnel is being excavate through solid rock at depths rangin from 225 to 350 feet. The liming we require 135,000 cubic yards of our crete. Aggregate for the liming is stockpiled both at the gravel pit an at a site adjacent to the center tunnel shaft, and is transported by 25 ton trucks.



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## New BPR publications on highways, watersheds

"Highway Transportation," a new 86-page reference book, has been prepared by the Bureau of Public Roads, U. S. Department of Commerce, and published by the National Academy of Sciences—National Research Council.

The booklet, complete with tables and charts, covers the physical plant—motor vehicles and highways; transport functions—highway usage, traffic trends and patterns, movements by the different forms of transport, and urban traffic; financing—highway receipts and expenditures, federal aid for highways, and capital investment in highways.

The booklet, priced at \$1.50, may be obtained from the National Academy of Sciences, Printing and Publishing Office, 2101 Constitution Ave., Washington 25, D. C.

This publication is a reprint of one portion of "U. S. Transportation: Resources, Performance, and Problems," published by the Academy at \$4 per conv.

"Peak Rates of Runoff From Small Watersheds" is a 4-part study limited to watersheds of 25 square miles or less, located east of the 105th meridian. The book gives statistical analyses of data from samples of gaged and ungaged watersheds, demonstrating a correlation between a topographic index, a precipitation index, and the watershed area. A correction coefficient is developed for use where differences in drainage characteristics are indicated. Also included is a method for application of the results of the study.

The bulletin, No. 2 of BPR's hydraulic design series, is available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. at 30 cents per conv.



FIVE-INCH BLAST HOLES are drilled through muck covered by as much as 10 feet of water by this Buffalo-Springfield 30-AW Speedstar during construction of two levees in Florida's Everglades. The 15-ton drill is mounted on a specially built carrier consisting of walkways and two pontoons each 5 feet deep, 5 feet wide, and 25 feet long. A crawler-track system driven by an auxiliary engine mounted on the front of the carrier moves around each pontoon, thus eliminating the need for auxiliary movers to drag barges over high spots or cut a path for the drill. The job, being handled by contractor Reynolds & Smith of Morehaven, Fla., is part of the Central-Southern Florida Flood Control area under the direction of the U. S. Army Corps of Engineers.

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Excellent for open end pump work, this hose has durable rubber tube reinforced with four piles of quality fabric. Tough rubber cover withstands rough use and abrasion. Sizes: 1", 1½", 2", 2½", 2", 2½", 3", 4". Ask for catalog showing complete line of CONTRACTORS MOSE, MOSE FITTINGS, BOOTS and WATERPROOF CLOTHING.

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21/2"	500	25#	43.
3"	500	30#	52.
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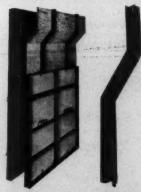
## **New Products**

for concrete forming



Symons cantilever bracket

Purpose of the cantilever bracket is to support inside form work and thus allow a difference in form heights for a monolithic wall-slab pour. An economical way to pour swimming pools, sewage treatment plants, and any other type work requiring a monolithic wall and base slab pour. Designed particularly for use with Symons Steel-Ply Forms.



Symons haunch bracket

Designed for pouring haunches, corbels or offsets. The brackets are made to order to any size the job requires. Designed for 3/4" plywood, the brackets are connected to Symons Steel-Ply Forms with regular form hardware.

For further information on these new products, as well as Symons Steel-Ply Forms, just write:

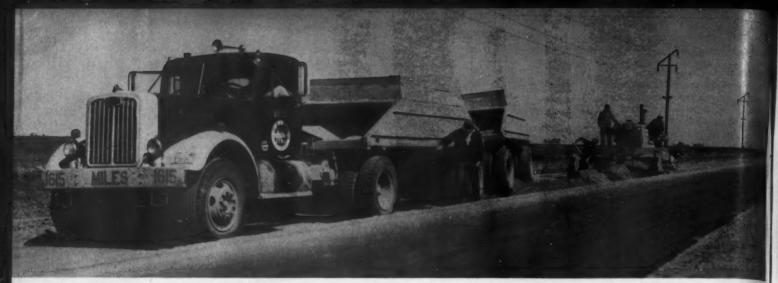


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MORE SAVINGS FROM SYMONS

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New California aggregate-base spex, designed for greater control and accuracy, are being met by Granite Construction Co., Watsonville, on State Route 33 near Mendota. Two Challenge-Cook Bros. trailers and an Autocar truck provide the most economical means of delivering base materials from the processing plant to the read.



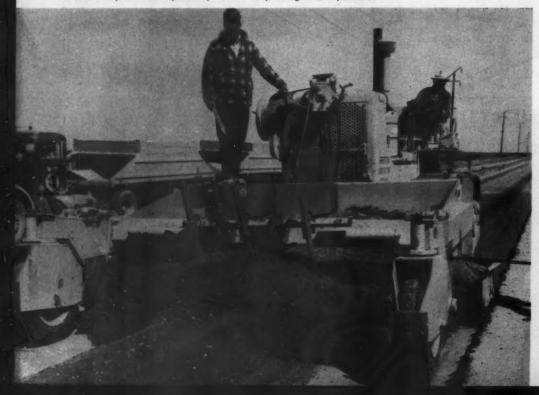
The dump man carefully checks distance with a Rolatape to be sure the amount of material in the load indicated by the weight ticket is spread over the required distance. If the spread is too light, the driver backs up to get the material into the required space.

## New spex and new methods for aggregate base

Contractors work to retain bottom-dump haul trains where specifications require use of spreaders

by RALPH MONSON, field editor

A Jersey spreader on a Cat D8 works closely behind the trucks, spreading the material for a 3-inch lift across the 12-foot lane. Not more than one load is dumped ahead of the spreader; this makes it possible to adjust the spread and keep the rig uniformly loaded.





A 3,400-gallon sprinkler on a Reo truck applies the to the surface of the lift right behind the spreader, spray is used so that the rig does not have to drive newly spread base.



The initial compaction is applied with this BuffaleS field roller. While results are satisfactory, trailer trai pears to be threatened; inability to dump directly in spreader is their principal weakness.

This plan shouldering rickson & Water spot the mater

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COAL CHERT CLAY

SEPTEMBER



This plant is producing aggregate-base material for shouldering on a concrete-paving job done by Fredrickson & Watson Construction Co. at Greenfield, Calif. Water spray adds the desired amount of moisture to the material as it comes off the belt at the left.

How to place aggregate base for bituminous or concrete pavements is currently one of the most controversial subjects in the highway industry. Conscientious specification writers are rewriting spex to insure getting the results designers intend. Contractors, hard pressed to show a profit, are attempting to meet these specifications economically. Both appear to be headed for success, but it is still difficult to predict the final outcome.

Admittedly, the base is an essential part of the highway pavement, whether it is surfaced with a slab of portland-cement concrete or with one or more courses of asphaltic concrete. The highway designers allot to the base the task of spreading the pavement loads to the subbase or grade. They designate the type of material and the thickness required to carry the load. The contractors, under supervision of the inspecting engineers, must attain the specified results within the permitted tolerances if the finished pavement is to have the strength and durability for which it was designed.

(Continued on page 42)

The truck dumps into the hopper of a Blaw-Knox shouldering machine that spreads the material on the shoulder. As the spreader puts the material down, it is ready for immegiate rolling.



A Buffalo-Springfield 10-ton tandem roller compacts the manterial right behind the spreader. This is the typical Class II aggregate base.







The NEW 14 cu. yd. H-30 is even more

## outstanding

than ever before with 25% greater capacity, many refinements, and additional features

When the H-30 was originally introduced, more than a year and a half ago, it was far ahead of any other tractor-shovel in its class. It has been exceptionally well received by contractors, public bodies, sand and gravel producers, and many others. Its performance has been praised by owner and operator alike.

Now, as the result of HOUGH's continuing program of research, development and improvement, the new H-30 series "B" model is an even better machine. Here are a number of points of special interest . . .

More Capacity: With a 1¼ cubic yard bucket, this new model has 25% more capacity. At the same time, the exceptional stability and balance of the original H-30 unit has been retained.

More Safety: The only loader in its class with boom arms positioned ahead of, and away from operator. It has a walk-in operator compartment, new hand rails and safety ladder, new adjustable bucket seat, new transmission controls and unmatched operator visibility.

Less Maintenance: The only loader in its class with simplified boom mechanism and single bucket tilt cylinder having from 6 to 12 fewer pivot and grease points to service. All bucket and lower boom arm pivot points are sealed against dust and dirt. The battery, instrument connections, fuel tank and transmission can be serviced from ground level. A stock of only 4 different hoses will service all the hydraulic system.

More Power: The H-30B has more horsepower-per-pound of weight than comparable tractor-shovels. Torque-converter is engineered to proportion engine power properly between drive-train and hydraulic requirements.

Better Braking: The four wheel hydraulic brakes give equal braking in forward or reverse and are sealed against dust and dirt. Exclusive HOUGH axle design permits servicing and relining brakes without removing and exposing planetary hubs to dust and dirt.

Full Power-shift Transmission: The only loader in this class with a "full" power-shift transmission which does not require stopping and engaging gears for a "range" shift. There are three speeds, both forward and reverse, and all shifts in either direction can be made "on-the-go." This dependable HOUGH transmission has been proven in thousands of PAYLOADER units.

Closed Hydraulic System: This exclusive HOUGH protective feature adds longer life and lower maintenance because the hydraulic reservoir is sealed and pressure-controlled to exclude air-borne dust and moisture. A full-flow, finemesh screen and a larger cartridge-type filter give extra hydraulics protection.

Positive Oil Cooling: Separate fan-cooled oil-to-air radiator assures positive cooling of both transmission and torque converter oil even in hot climates. Another exclusive HOUGH protective feature.

"Operator's-choice" Braking: Dual brake pedals give the operator a choice of braking with or without transmission engaged. The only loader in its class with this valuable HOUGH-pioneered feature.

"Power-transfer" Differentials: Both axles are equipped with torque-proportioning differentials. When one wheel has better traction than the other on the same axle, it can automatically receive up to 38% more torque. This assures the best possible traction at all times.

The H-30 series "B" is offered with a choice of gasoline or diesel power and with buckets from 3/4 to 21/2 cubic yard capacities (S.A.E. rated) for handling materials of various weights. For additional information, see your HOUGH distributor or use the attached coupon.

THE FRANK O.	
762 Sunnyside Ave.	
Please send full da	te en model H-30B PAYLOADER
Nome	
Title	
Company	
Street	
City	State

## HOUGH!





HOUGH, PAYLOADER, PAYDOZER, PAYMOVER, PAYLOGGER, PAYLOMATIC and PAY are registered trademark names of The Frank G. Hough Co.



PATIO和D国强。



At a Standard 6,000-pound-batch asphalt plant, used by Madonna Construction Co. to mix cement-treated base material, a semitrailer behind a Ford truck picks up a load. Aggregates fed from the crushing and screening plant go through the dryer and gradation unit, though no heat is applied in the dryer. Aggregates, cement, and water are combined in the proper proportions so that the material is ready to lay and roll without any additional operations.

aggregate base shall be spread with equipment that will provide a uniform layer conforming to the planned section both transversely and longitudinally within the thickness tolerance specified hereafter, without recourse to drifting, spotting or otherwise shifting the material or which does not otherwise cause segregation of the material.

"The use of motor graders, except for final trimming after compaction, will not be permitted."

These are strong words that envisioned something less than an asphalt-paving machine for laying the base but something better than the crude spreader boxes generally in use. The only loophole is a phrase in the general specifications that specifically permits the use of alternate equip-

ment if it can be demonstrated that it produces the specified results. The application of this specification, plus a normal amount of variance in the interpretation of the specification in the several districts, has led to a wide range of base-laying operations around the state.

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#### Use bottom-dump trailers

From the contractors' standpoints one of the important considerations is the cost of haul. For many years, the most economical method of hauling aggregates on relatively long hauls has been with trains of two bottom-dump trailers pulled by a truck-tractor. These trailers usually carry about 12.5 tons each. Their wide-open tops permit quick loading by shovel, tractor shovel, or con-

(Continued from page 39)

Within the past few years, the Division of Highways of the state of California has conducted a number of investigations of finished bases and pavements to determine if the finished products meet the specification requirements.

Somewhat to their surprise, they discovered that base courses varied in thickness much more than expected. One job with a specified 8 inches of base had portions as thin as 5.7 inches. In some cases, jobs with base thickness specified at 0.5 foot ranged from 0.3 to 0.7 foot. These discoveries spurred the specification writers to take a second look at their spex.

They discovered, for example, that subgrades for bases were generally finished to bluetop grade with a permitted tolerance of 0.1 foot. Finished surfaces of bases were also checked against bluetops with the same tolerance. This method of determination and the plus or minus 0.1-foot tolerance meant that the thickness could vary 0.2 foot either way from the specified thickness without exceeding the specified tolerance.

Since thickness was the design criterion and since the actual elevation of the finished grade was not usually important on rural highways, the specifications were rewritten to require that "the thickness of the finished base shall not vary more than 0.05 of a foot from the planned thickness at any point."

This meant that the subgrade must be finished to plan grade within the specified tolerance. But from that elevation up, the governing factor was the thickness. This provided a more positive method of measurement and eliminated at least one bluetopping operation for the survey parties.

#### Spex require spreader

The old specification also included the phrase "approved spreading device," as well as other expressions not capable of exact determination.

The specification writers, considering the importance of the base course, decided that it should be placed with greater accuracy and control than the old specification required. As a result, they wrote, "...

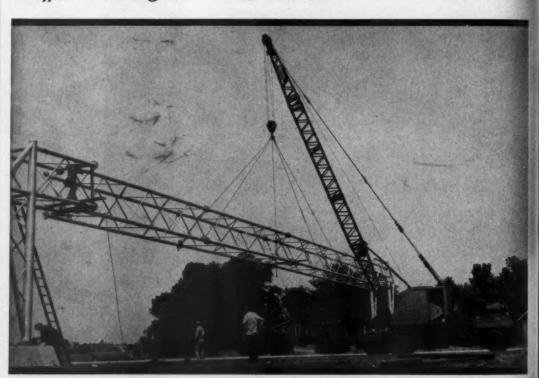
NO TRAFFIC JAM

CRANEMOBILE.

Makes Lift...
6 Minutes Later
Traffic Flows Again

The overhead support being erected here by the H. John Homan Ca., Collingswood, N. J., for the Delaware River Bridge Authority, will carry directional signs for eight traffic lanes. While work was in progress, all traffic was halted — but, not for long. From the time Homan's 30-ton CRANEMOBILE moved into working position until the support was fastened, only six minutes had elapsed.

You'll find a CRANEMOBILE brings you the finest combination of advantages available for fast, safe lifts. Setting-up is exceptionally quick. Pin-connected boom sections permit rapid change of boom length. With hi-gantry and powerful independent boom hoist, boom and jib are raised from travel to working height without outside assistance. Extendible outriggers are quickly set.



In action, CRANEMOBILE load control is unmatched. With boom hoist independently power-operated, the crane operator raises or lowers boom or boom-and-load simultaneously with any other operation. A load-lowering device that's quickly engaged or disengaged handles the lowering of heavy loads smoothly and with precision. A heavy-duty, smooth-operating swing brake offers finest drift control; the operator swings the load into position . . . HOLDS that position exactly.

CRANEMOBILES are available in 25-, 30-, 35-, and 40-ton sizes . . . are mounted on specially designed BAY CITY-built 6 x 4 or 8 x 4 carriers. For detailed information and the name of your nearest dealer, write today.

BAYCITY SHOW 2611-BAY CIT

2611-A Center Avenue BAY CITY, MICHIGAN

a subsidiary of Unit Crane & Shavel Corp.

For more facts, use Request Card and circle No. 281

CONTRACTORS AND ENGINEERS

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entire 400' earthen boy preserving to required to from remote veyor. The air-operated bottom-dump gates, actuated from the cab, can be opened and closed without even stopping the rig.

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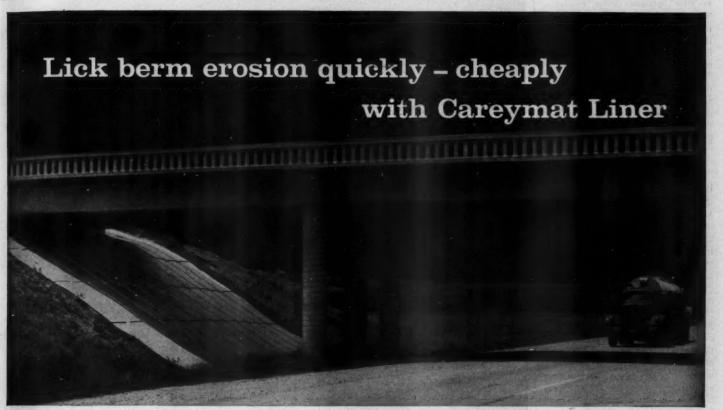
two by a sually Since many hundreds of them are in operation by contractors, contract haulers, and material suppliers, they are readily available throughout the state. In recent years, they have been used almost exclusively for hauling base aggregates from pit, stockpile, or processing plant to the road.

While the new specification does not prohibit the use of bottom-dump trucks, contractors are experiencing difficulty in spreading the windrows laid down by these trucks to meet the specifications. Particular difficulty has been experienced when contractors have tried to place more than

(Continued on next page)



Big end-dump trailers feed a Blaw-Knox paver that lays 8 inches of loose material in a single pass. This compacts to the required 6-inch course. Adjacent lanes were laid within a half-hour so they could be matched and blended before the cement set up. An 18-ton 3-wheel roller handled compaction, and a light cut with a motor grader trued up the surface.



For 1/3 to 1/2 the cost of concrete, the Kansas State Highway Department protected the embankments of this overpass from erosion with Careymat Liner.

And study these ideas . . .

A "Telescope"

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AN

A "Great Lake"



Erosion control, again, in this gigantic radio telescope near Danville, III. The entire  $400^{\circ} \times 600^{\circ}$  basin of this great earthen bowl is lined with Careymat, preserving the precise earth contours required to trap and record signals from remote stars.



Careymat is ideal for water containment in ponds, reservoirs and canals.

This partially-filled basin is one of the "Great Lakes" in Freedomland,
U.S.A. More than 420,000 sq. ft. of Careymat line these lakes, holding
20,000,000 gallons of water.

Fast, simple installation: Highway maintenance crew spiked flexible Careymat sheets to the slope, overlapping top and bottom. Sides were butt-jointed and sealed with batten strips. The perimeter of the entire installation was turned down and anchored in a 12" trench and backfilled. The surface was then painted with Carey Fibrated Aluminum Roof Coating.

The result: Effective erosion control at a material and labor cost far below other berm-facing methods. Try Careymat on your next bridge job.

For details on Careymat and on application methods, write Dept. ENG-961, The Philip Carey Mfg. Company, Cincinnati 15, Ohio. Carey.

On the Granite Construction spread, three listers—plows used locally for furrowing cotton and other crops, are used to distribute material without segregation. The outer two plows are partially cut away to give the desired spread. All three give the windrow a mixing action. This recombines materials that have segregated in the trucks.



kept slightly below the optimum, which was 11 per cent in this case.

The mix was loaded from a scale hopper that weighed out 12.5-ton loads to a fleet of International dump trucks. The trucks dumped the material directly into a Blaw-Knox spreader on the road, which laid down enough material for the 4-inch compacted course on the roadway.

The course was rolled first by a Buffalo-Springfield tandem with segmented rollers and then by a Bro rubber-tire roller. This spread regularly laid 3,000 tons of the materia in less-than-8-hour days.

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#### Combines bottom and end-dumps

The E. L. Yeager Co., Riverside used a different method on a joinear Baker with satisfactory results as explained by J. S. Yeager. In the case, bottom-dump trucks laid down a windrow which was intentionally

(Continued from preceding page)

3 or 4 inches in a lift, especially if the material has not been prewet to near optimum water content. While the specification permits the placing of up to 6-inch compacted lifts in a single course, most contractors have found it necessary to place two 3-inch lifts instead.

Where the moisture is added in a plant and end-dump trucks do the hauling and dump directly into the spreaders, there has been no problem in laying the 6-inch course in one page.

#### Likes new method

The reaction of contractors around the state varies widely. The Claude C. Wood Co., Lodi, has done three jobs under the new specification. Wood says, "We think the new method is economical and would use it under these conditions even if we were not required by the specification to do so."

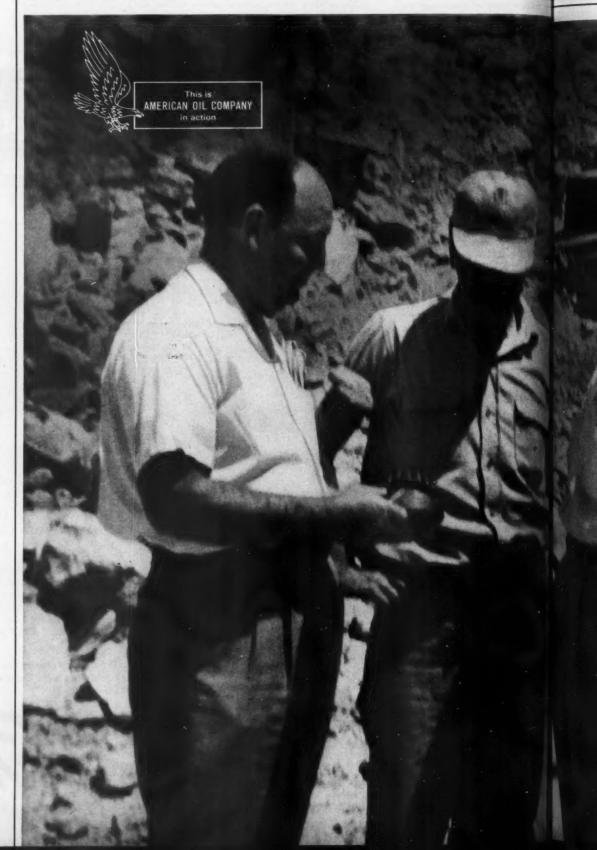
Frank A. Arentz, Wood's general superintendent of construction, explains that the aggregates for these jobs were produced in the company's commercial aggregate-producing plant. Water was added at the end of a belt conveyor as the material was put into stockpile. It was loaded out by Michigan and Caterpillar tractor shovels to a spread of Challenge-Cook Bros. end-dump trailers pulled by Mack trucks. The trucks delivered the material directly into a Blaw-Knox spreader on the road.

The spreader, modified somewhat in Wood's shop, laid down a 7½-inch loose course of material that compacted to almost exactly the required 6 inches. The course was compacted by a Huber 3-wheel 12-ton roller and a Seaman-Gunnison Duo-Pactor, using the rubber first and then the steel.

#### Add water in plant

The Daley Corp., San Diego, has also had very satisfactory results from an operation in which the water was added at a plant. The operation is explained by Daley's general superintendent, Dave Rogers.

Sand and crushed rock were blended to produce the desired grading, and water was added as the materials were mixed in a Barber-Greene continuous mixer at the company's plant on the outskirts of San Diego. The water content was



A Michigan 175A tractor shovel loads material from the stockpile to a Reo dump truck on the Watson job. Material in the stockpile is well proportioned and contains the optimum amount of moisture.

kept lighter than was required for the 4-inch lift.

A Jersey spreader on a Cat D8 tractor spread the material from the windrow. An end-dump truck worked right with the spreader at all times, supplying the deficiency in the windrow and keeping the spreader uniformly loaded. This operation took advantage of the cheaper haul by the bottom-dump trains for the bulk of the material but gave the precise

control required by the spreader to lay down a uniform course without segregation.

This material was watered by a water truck immediately after it was laid and then was rolled without blading. The specified 8 inches of aggregate base was placed in two 4-inch lifts.

A somewhat similar operation by Granite Construction Co., Watsonville, on a section of highway near





Why this bearing runs cooler with AMOCO Lithium Grease is explained by American Oil representative Harold Jansen to Raid Brothers' superintendent Kenneth Pearson and partner Melvin Raid.

### Result of first experience with American Oil Company service—down-time reduced



BY HAROLD JANSEN

About the Author. Harold Jansen has eleven years' experience giving lubrication technical assistance to customers. He has a degree in engineering to qualify him for such

work in addition to having graduated from the Company's Sales Engineering School.

Bearings were running hot in the rockcrushing equipment at Raid Brothers aggregate plant, Denmark, Iowa. This reduced the speed at which the equipment could

Our lubrication specialist who called on this account before me recommended a switch to Amoco Lithium Grease. The grease reduced bearing temperatures, got the bearings running smoothly, upped operating speeds and plant efficiency and cut down-time. The success with this grease, and with the technical assistance we were able to render here, resulted in Raid Brothers converting their entire plant, including automotive equipment, to American Oil products.

You can get this kind of technical help and performance improvement from your equipment. Just call the American Oil Company office near you.

#### Quick facts about AMOCO Lithium Grease

- Capable of providing superior lubrication over a wide range of conditions.
- Water resistant.
- High temperature resistant.
- Pumpable in grease gun or pressure system.
- Mechanically stable.



#### AMERICAN OIL COMPANY

910 SOUTH MICHIGAN AVENUE CHICAGO 80, ILLINOIS Mendota is illustrated in the series of pictures on page 38.

Another example of processing and laying aggregate base is shown in the pictures on page 39. In this case, the contractor is building the base for the shoulders of a concrete pavement.

While it is cement-treated base instead of plain aggregate base, the operation illustrated on pages 42, 43 is unusual because the aggregates, cement, and water are mixed in an asphalt-paving plant and are laid down on the roadway with asphalt-paving machines.

A number of contractors have attempted to lay full 6-inch courses with bottom-dump trucks followed by spreaders, but most of these appear



The base as laid down by the spreader for Granite Construction shows no segregation. The bottom-dump trailers make the haul economical; the spreader gives precise control. The material comes from a dry pit, and no water has been added at this point.

to have been uneconomical for the contractor and/or unacceptable to the state. One of the problems is that it takes two windrows of material from the bottom-dumps to provide enough for a 12-foot lane 6 inches thick. It is difficult to dump two windrows side by side within the reach of the spreader, and the specification prohibits drifting the windrows with a motor grader.

Many contractors, contract haulers, and material suppliers are working on methods of using the efficient bottom-dump rigs, and some new processes and modified machines are expected to be tried this season.

THE END

For more facts, use Request Card and circle No. 283.

#### Names in the News



Percy L. Blackwell, chief of the Nuclear Energy Branch, Bureau of Public Roads.

## BPR appoints two to top assignments

The Bureau of Public Roads, U. S. Department of Commerce, Washington, D. C., has assigned Percy L. Blackwell as chief of the Nuclear Energy Branch. His new duties will include the development and application of nuclear science, sonic, infrared, and ultraviolet technologies to highway operations.

Blackwell has had 30 years of highway engineering experience with the Massachusetts Department of Public Roads, the U. S. Army Corps of Engineers, the Bureau of Public Roads, and as manager of the road machinery division of the Jaeger Machine Co., Columbus, Ohio.

Kenneth B. Foster has been appointed chief of the Secondary Roads Division, office of engineering. With 30 years' experience in the bureau, he most recently served as special assistant in the office of engineering.

### Civil engineer named to Arizona board

John Girand, president of Johannessen & Girand, Inc., consulting engineering firm of Phoenix, Ariz., has been appointed by Gov. Paul S. Fannin to a 3-year term on the Arizona State Board of Technical Registration.

The board is the official body responsible for certifying architects, engineers, geologists, land surveyors, and assayers who are licensed to practice in Arizona.

Girand, who has had more than 30 years of professional practice, is a fellow and past president of the Arizona Section, Emerican Society of Civil Engineers.

#### Michigan Highway news

Edward A. Bellenbaum, chief of the office of planning, will be the official representative of state highway commissioner John C. Mackie on the executive committee of the Inter-County Highway Commission of Southeastern Michigan.

Five employees of the Michigan State Highway Department, Lansing, Mich., have been promoted. They are: Harold V. Brunvand to engineer of design; Frederick J. Cook to assistant engineer of design; Forrest W. Gillespie to administrative assistant to deputy commissioner Frederick E. Tripp; William V. Tyron to chief of the management-methods section; and Charles M. Tiernan to account examiner in the local government section.

#### New regional manager for John Clarkeson

Edward DePina has been named regional manager for the Albany office of John Clarkeson, Consulting Engineer. His duties will include general supervision of the engineering work performed by Clarkeson in the northeastern United States.

DePina formery served in the Albany office as resident engineer for two sections of Interstate 502.

#### North Carolina makes Highway appointments

The North Carolina State Highway Commission, Raleigh, N. C., has made several appointments.

W. F. Babcock has been reappointed highway director for a 4-year term. Ben Roney was named director of secondary roads, Ervin Dixon was renamed to a 4-year term as controller. Clifton Benson was named vice chairman of the commission.

A special committee was organized by the commission to investigate and report on a request for major improvements to U. S. 301 between Rocky Mount and the Virginia line Named to this committee were Worth Joyner, Tom McLean, and Clifton Benson. AISC

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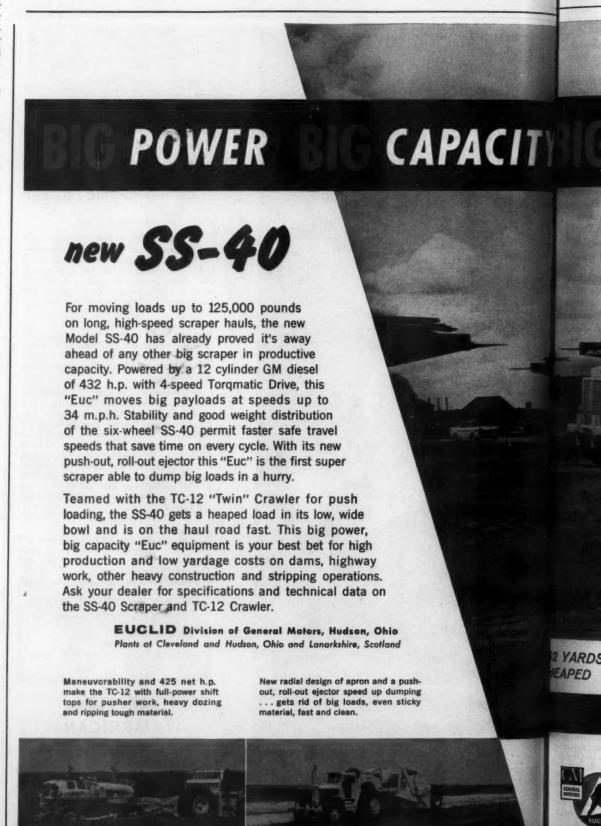
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## New member appointed to arbitration panel

The Amercan Arbitration Association, New York, N. Y., has appointed Dr. Sidney F. Borg to its National Panel of Arbitrators. Dr. Borg is head of the Civil Engineering Department, Stevens Institute of Technology. He will be available to serve in disputes over the performance of commercial contracts.



#### AISC appointments

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J. Philip Murphy, president of Yuba Consolidated Industries, Inc., San Francisco, has been elected second vice president of the American Institute of Steel Construction, New York, N. Y.

William T. Egan has been named general manager of the Yuba Manufacturing Division, Benicia, Calif., manufacturer of heavy mechanical equipment for hydroelectric projects and steel-plate products for the petroleum and chemical industries. He was formerly sales manager of Yuba Erectors Division, Emeryville, Calif.

Edward A. Fontaine, new vice president of Stone & Webster Service Corp.



#### Stone & Webster news

Stone & Webster Service Corp., New York, N. Y., management consulting firm, has appointed Edward A. Fontaine a vice president.

An electrical engineer, Fontaine has

been associated with the firm for more than ten years.

Fred R. Stevens has been appointed district manager of the Chicago office of Stone & Webster Engineering Corp., Boston, Mass.

Stevens is a vice president of the firm and has been its labor-relations consultant since 1959.

#### Harza appoints two

Harza Engineering Co., Chicago, Ill., has appointed U. V. Engstrom resident construction engineer for Wanapum Dam, being built for the Public Utility District of Grant County, Wash. Engstrom recently completed an assignment as project engineer for construction on the Quebec Cartier Mining Co. railroad facilities in eastern Canada.

In his new post, Engstrom succeeds R. B. Jackson, who has been transferred to Chicago as Harza's chief construction engineer. Jackson will retain general direction of Priest Rapids Dam, a sister hydroelectric project near Wanapum Dam.

#### **Corps appointments**

Lieut. Gen. W. K. Wilson, Jr., recently assumed command of the Army's Corps of Engineers, Washington, D. C.

Maj. Gen. Stephen R. Hanmer, deputy chief of engineers for military operations, Office Chief of Engineers, Washington, D. C., has been reassigned as commanding general, U. S. Army Engineer Center and commandant U. S. Army Engineer School and Research and Development Laboratories in Fort Belvoir, Va. He is succeeded in his former post by Brig. Gen. Alden K. Sibley, currently serving as deputy chief of staff for logistics, Military Assistance Advisory Group to Vietnam.

Lieut. Col. Leon J. Hamerly has been assigned as district engineer for the Corps at Buffalo, N. Y. He succeeds Col. Earle B. Butler, who is being assigned to the Military Construction Supply Agency, Columbus, Ohio.

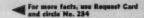
Col. Donald G. Williams has been named district engineer at Honolulu, Hawaii. He is succeeded as deputy division engineer, Pacific Ocean Division, Honolulu, by Col. John R. Cliffon.

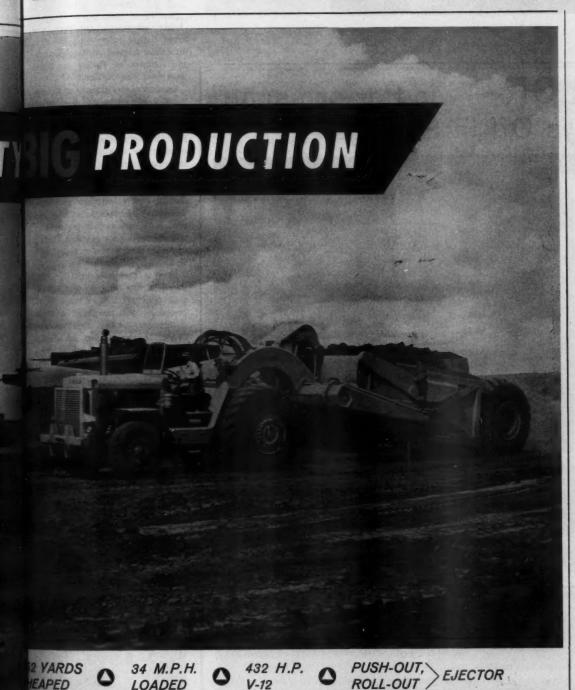
#### Virginia Highways personnel changes

The Virginia Department of Highways, Richmond, has made several personnel changes.

J. M. Wray, Jr., resident engineer at Ashland, was promoted to assistant district engineer for the Salem district, and H. D. Shaver succeeds him in his former post. The following resident engineers were transferred: F. E. Campodonico, to Louisa to replace Robert H. Ingle, who is retiring; H. A. Fennell, to Petersburg; J. L. Parker, to Saluda; and A. P. R. Lovell, to Dillwyn. F. G. Sutherland was promoted to resident engineer at Sandston.

Promoted to the post of assistant resident engineer were: H. S. Northington, Jr., in the South Hill residency; J. S. Hodge, at Leesburg; A. R. Cline, at Culpeper; Jon A. Roach, at Harrisonburg; and M. E. Bayliss, at Luray, replacing W. R. Mustain who was promoted to secondary road planning engineer at the Richmond office. Homer Perry was transferred to King George as assistant resident engineer, succeeding J. P. Harris, who was promoted to district supervisor of survey parties in the Fredericks-burg district.









FOR MOVING EARTH, ROCK, COAL AND ORE



## Tight schedule and spex

Fast and accurate work and compliance with many change orders necessitated by new developments in the missile are required of contractors on Atlas complexes. Independent Contractors & Engineers, Dallas, met all the requirements at Forbes AFB near Topeka. The American motor crane at this complex helps place Symons steel-backed plywood forms during work on a launch service building.

## How NAYLOR "Twin-Performance" Pays Off in Savings



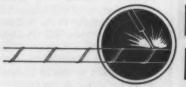
Over the years, NAYLOR Spiralweld pipe and Wedgelock couplings have proved a cost-cutting combination for pipe lines in air, water, dredging and ventilating service.

The light weight of NAYLOR pipe adds up to important economies. Lower transportation costs. Easier handling. Faster installation. But there is

no sacrifice of strength because the exclusive NAYLOR Spiralweld structure provides the extra strength and safety your jobs require.

Further savings are assured through the Wedgelock coupling. You get fastest possible connections. Lines can be made up with only one side of the pipe exposed. No special equipment is necessary—a hammer is the only tool required.

For details on this working combination, write for Bulletin No. 59.



weight grooved ends.

NAYLOR PIPE Company

1270 East 92nd Street, Chicago 19, Illinois
Eastern U. S. and Foreign Sales Office: 60 East 42nd Street, New York 17, N. Y.
For more facts use Request Card and circle No. 288

Tight schedules, tight spex, and many change orders were the chief difficulties in work on the Atlas missile complex at Forbes Air Force Base near Topeka, Kans.

Because of the urgency of the national defense program, close scheduling of construction was mandator. To meet the accelerated schedules, the contractor at times found it necessary to work around the clock, seven days a week.

Because of the complex and delicate nature of the liquid-oxygen fueling system, stringent specifications had to be followed. Piping systems could not contain foreign particles larger than a pinpoint. Certain of the machinery anchor bolts had to be set with optical precision.

Because the design of the Atlas missile is still being perfected, there were frequent changes made in the design of the launching facilities during construction. The numerous change orders tended to disrupt previously made construction schedules.

#### Nine sites

The Atlas missile complex consists of nine sites within a radius of 40 miles of Topeka. Each site consists of two thick-walled concrete structures half buried in the ground. The launch and service building that houses the 85-foot intercontinental ballistic missile has a concrete and steel roof that rolls back to allow the missile to erect and fire. The launch operations building contains the supporting equipment and personnel facilities. The two buildings are connected by a 7½-foot-diameter tunnel of corrugated metal.



Work on piping had the most stringent spex. No foreign particles larger than six-thousandths of an inch are allowed inside, and field connections are generally made in a plastic and wood shelter by workmen in white nylon coveralls. Filters screen allowed in the string which is at a higher pressure inside so that it always flows outward.

CONTRACTORS AND ENGINEER

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ing system.

Launch

launch and launch operations at 1-stee is a 1-stee structure but 60 × 90-foot contains two generators, )

SETEMBER, 1

Many different agencies are involved with the design and the supervision of the construction of the base. Bechtel Corp., San Francisco, is the architect-engineer for the design agency, the Air Force Ballistic Missile Division. The U. S. Army Corps of Engineers is supervising construction of the complex, including the propellant loading system.

Convair Astronautics is building the actual missile for the Air Force Ballistics Missile Center. Convair is the integrating contractor for the Air Force for the Atlas. It performs the installation and checkout of the missile, erection mechanism, and certain control systems.

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#### Construction starts

Independent Contractors & Engineers, Dallas, Texas, held two contracts, for a total of about \$10 million, that included the construction and equipping of three missile sites, as well as supplying the equipment for the six remaining sites.

The contract for the construction of the six remaining sites was awarded to Blaw-Knox Co., Pittsburgh, Pa., for \$7 million. Although it would appear that Blaw-Knox is building more sites for less money, the difference is made up in the price of the equipment furnished by Independent.

#### Launch and service building

From a construction standpoint, all of the nine sites are identical. The launch and service building is a 1-story heavy-walled reinforced-concrete structure partially buried in the ground. The missile lies in a 104 × 26-foot chamber covered by a massive sliding door. The door, built like a bridge deck, rises up a short distance, then moves aside on rails until the opening is clear. A concrete flume deflects the exhaust gases of the missile and carries them to the surface. This exit is covered by a sliding steel door at ground level, when not in use.

Surrounding the missile chamber are rooms that contain the piping and controls of the propellant loading system. Buried in the ground outside the structure are nests of tanks for the storage of oxygen, nitrogen, and helium.

The liquid oxygen, combined with a kerosenelike fuel called RP-1, is the propellant for the missile. The inert helium and nitrogen force the oxygen into the missile during loading, and out of the missile during flight.

#### unch operations building

About a hundred feet from the sunch and service building is the launch operations building. It, too, a 1-story reinforced-concrete structure buried in the ground. The 00 x 90-foot windowless building contains two 550-kva diesel-electric generators, heating and ventilating equipment, and limited personnel

(Continued on next page)

SEPTEMBER, 1961



A Koehring crane places the steel door to cover the flame exit flume of the launch and service building at site E. An 36-ton liquid-oxygen tank will be placed in the excavation at right foreground, with an end inside the circular opening.



For more facts uso Request Card and circle No. 289

Workmen set the steel rails that will carry the sliding door of a fame exit flume. The dark, rec-tangular opening is the flame pit. Rails in the foreground carry the door when the pit is open.



## REPOR

On Ellicott Dragon Model Portable Dredges



O. E. Simmons, Palo Verde Irrigation Dist., Blythe, Cal., says, "All checks indicate the dredge is exceeding the specified capacity. Our operators frequently comment on the simplicity of operation and the small amount of effort required to handle the control system."

#### Georgia Dredging Company Official

James G. Hardee, III, Chatham Dredging Co., Savannah reports, "We are well pleased with the operation of our DRAGON's all-hydraulic system. It is excellent. It has insured very economical ease of operation."

#### Ohio Municipal Water Department Director

W. T. Eiffert, Dayton, Ohio, writes, "We have never received such a complete piece of equipment, nor have we ever received such complete training in the operation of a new piece of equipment."

#### Florida Real Estate Developer

Leonard Mulbry, "Venezia," New Smyrna Beach, Fla., states, "We have been more than satisfied with the production and operation of our Ellicott DRAGON. It is well engineered, accurately constructed and economical to operate. We have determined the value of obtaining a completely engineered dredging unit from a reputable manufacturer rather than building one ourselves or obtaining one from a less well-established firm." obtaining one from a less well-established firm.

Other satisfied users of Ellicott DRAGONS have made similar statements, all of which testify to the DRAGONS' top-flight design, quality Ellicott components and proved performance. When you are considering the purchase of a dredge to excavate underwater earth materials, we will be glad to furnish the technical details on the

correct DRAGON for your project.
A comprehensive brochure describing the complete

line of standardized DRAGON model dredges and their wide variety of applications has been pre-pared for you. Simply fill in the handy coupon and your copy of Bulletin 980 will be mailed promptly.

#### LICOTT DREDGES

MACHINE CORPORATION

## ELLICOTT MACHINE CORPORATION

(Continued from preceding page)

facilities. The building houses t operational crew.

Independent Contractors & Engl neers, which built the first three sit did all its own concrete work. Wallac Process Piping Co., Denver, hand the sizable mechanical subcontract Almond Electric Co., Dallas, did to electrical work.

Although each site had its or superintendent, the work was ordinated by a project manager wh worked from a centrally located field office in Pauline, Kans.

Getting around to the wide scattered sites was a problem. visit to all sites required 150 miles of driving. Two-way radios at the sites in the field office, and in the ca of key personnel greatly speeds communications.

#### Batch plant at each site

At each one of the sites, the contractor set up a batch plant to perduce the 5,000 cubic yards of concret necessary for the two structure Transit-mix trucks carried the concrete to the buildings. Two cranes at each site assisted in the forming and the placing of the concrete. the forming of the walls, Symon steel-backed plywood forms we

Anchor bolts on certain operation equipment had to be set to within five-thousandths of an inch. Th required that the bolts be set under

#### Precautions for pipe work

The most difficult part of the construction was the installation of the piping. A complex maze of pipe valves, and controls runs from the tanks outside the building to # interior rooms, and then to the misile. It is all part of the system in pushing the liquid oxygen, hellm and RP-1 fuel into the missile.

These pipes and tanks have to h as clean as a surgeon's instrume If the liquid oxygen impacts with tiny speck of grease in the pipe Boom!

Most of the pipes and tanks at area enginee made of stainless steel. On Indo-Ramee. For I pendent's contract, the pipes wer & Engineers, cleaned with an acid bath at the Wallace plant in Denver. After th ends of the pipes were sealed, th were shipped by rail and truck the job site.

Once on the site, precautions to be taken to prevent any par of dirt or other foreign matter entering the pipe during field o nection. The specifications read 2 no particles larger than 150 mic (six-thousandths of an inch, or half the size of a pencil point) a be permitted in the piping syste

Several methods were used to b air-borne particles from entering pipe during welding or bolting of connection. Generally, the tion was enclosed in a plastic wood-frame shelter large enoug permit one or two men to work side. Air to ventilate the shelter screened through filters similar those used on home furnaces. Whe

artitions 8 e clean a o that the e from the ecaution. wear wh orking on Large qui ed in the ipe. During of pipe, a flo out of one This preven ight be in iping syste nnections ted. Most erformed i

g, clean

In testing of a line i was forced blown out th The filter versize par rocess cont em met the hecked for roept for t In testing or its abil loyed. Nitr the closed 1 the pressure 7,500 psi.

To reduce es and v e manufe skids, they nits to the making rela Change or ntracts, a rders served ive the conhanges con nement of

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ork was being done inside the building, clean areas were shut off by partitions and plastic. Blowers kept he clean areas at a greater pressure English the clean at the flow of air would always e site to from the inside out. As a further the flow of the control of the control of the clean at precaution, pipefitters were required to wear white nylon coveralls while orking on a connection.

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Large quantities of nitrogen were sed in the joining and testing of the pipe. During the joining of two ends of pipe, a flow of nitrogen was forced or who are of one of the ends of the pipe. out of one of the ends of the pipe. This prevented any particles that wide might be in the air from entering the piping system. Although some of the connections were welded, most were bolted. Most welding had already been performed in earlier prefabrication.

In testing the completed segment of a line for cleanliness, nitrogen was forced through the pipe and blown out through a clothlike filter. o pro- The filter was then examined for oversize particles. The blowing-down process continued until the pipe system met the spex. Effluent gases were checked for presence of hydrocarbons except for the RP-1 fuel system.

In testing a line for leakage and for its ability to withstand high pressures, nitrogen was also emloyed. Nitrogen was forced into the closed piping system to bring the pressure up to (in some cases) 7,500 psi.

To reduce the number of field onnections, compact assemblies of ipes and valves were made up in he manufacturing plant. Called skids, they were shipped as sealed of the units to the site, and installed by making relatively few connections. Change orders were a constant headache. On Independent's two contracts, a total of 140 change orders served to delay the work and give the contractor gray hairs. The hanges contributed to the postonement of the completion date or some five months.

For the Corps of Engineers, the iks an area engineer is Lt. Col. Paul W. Ind. Ramee. For Independent Contractors s week & Engineers, J. D. Downie was proj-



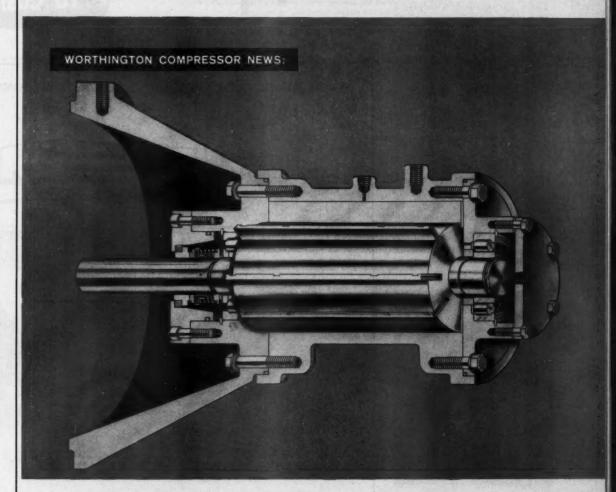
onnel of Independent Contractors
gineers go into a huddle in the
er office. Facing the camera at K. H. Simmons, controller out Dallas home office, and at right nie, project manager.

ect manager. For Blaw-Knox, H. E. Bayer was project manager.

For the Air Force, Col. William Ruark, Site Activation Task Force commander, is responsible for all operations until the bases are turned over to the Strategic Air Command for operational use. THE END

SHOT ROCK IS REMOVED by a new ¼-yard P&H backhoe on a job, 15 miles south of Sheffield, Texas, which involves trenching of a feeder line for Humble Oil & Refining Co. The rig, built by Harnischfeger Corp. Is used by McVean & Barlow, Inc., pipeline contractor of Odessa, Texas.





## **NEW MONO-ROTOR INTRODUCED** IN 85', 125' AND 250' MODELS

Now Worthington introduces the new Mono-Rotor Blue Brute compressor-a significant step ahead in improving compressor performance. The Mono-Rotor introduction follows six full years of development and field testing. It can be ordered immediately in the most commonly used sizes.

The major feature of the Mono-Rotor design is its extremely simple, dependable construction. The Mono-Rotor is built with just one stage . . . just one rotor . just two bearings...no gears...oil pump.



NEW 128' MONO-ROTOR COMPRESSOR

It is simpler in construction than any two stage compressor or any screw type compressor. This simple construction is

the basis of its high degree of reliability.

How reliable is the Mono-Rotor? Its reliability is so great that Worthington has quadrupled its warranty period. The standard warranty agreement has been extended from the usual 90 days to one full year. Worthington is the first compressor manufacturer supplying the construction industry to do so.

What makes the new Mono-Rotor design so successful? It is the new Worthingtondeveloped rotor-to-cylinder sealing. For over ten years the industry has attempted to solve this problem for larger compressor sizes. Two-stage construction was the solution until Worthington developed new methods of oil distribution within the cylinder. Now an efficient, dependable air supply is available in just one stage-one

rotor construction.

The new Worthington Mono-Rotor

units have other benefits, too. They are 20% lighter in weight and are designed for improved towing and tracking. The third wheel is standard equipment for easier handling on the job. There is an engine-

saving clutch and many other features. The Mono-Rotor Blue Brute can now be ordered in the 85', 125' and 250' sizes. See it . . . rent it . . . or buy it at your Worthington dealer listed in the Yellow Pages under "Compressors." Or write Worthington Corporation, Dept. 60-37, Holyoke, Mass. In Canada: Worthington (Canada) Ltd., Brantford, Ontario.



PRODUCTS THAT WORK FOR YOUR PROFIT



Each bidder registering is assigned a card with a number under which all his bids are recorded.



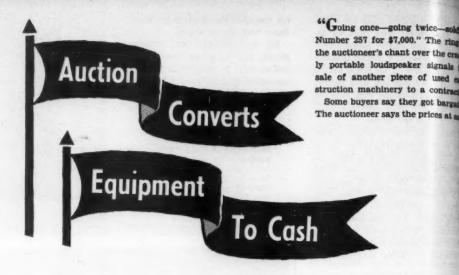
Some of the bidders' wives show a lively interest in the proceedings, which saw equipment from cranes to small air tools go under the hammer.



Vic Martin, a small contractor, takes a break long enough for a sandwich. He claimed bargains in some clam and dragline buckets and a pickup.



One of the families that took in the auction makes sure the small fry doesn't wander off while the grown-ups' attention is on the bidding.



AUSTIN-WESTERN PRODUCTS SAVE TIME AND MONEY



WHY MOST GRADERS
CANNOT USE FULLY LOADED BLADES

With a fully loaded blade it would be nearly impossible for them to work ahead in a straight line and yet move material the maximum distance. Sidethrust can toss ordinary graders about like corks. Not so with Austin-Westerns. For you can use every single inch of A-W's 13-ft. blade length to move more material farther and faster... always in a straight line... than with any other grader. Why? Because of all-wheel drive and all-wheel steer. No front-end dead weight means balanced power at the blade. Rear steers, too, so operator can offset the machine to eliminate all sidethrust at the toe of the blade to permit use of its full length.

An A-W is the one machine contractors can use for both rough and finish grading. Hydraulically controlled; side-shifting moldboard slips nimbly around stakes and forms. Completely controlled from cab; no linkages to change. 9 models; 4 and 6-wheel machines—weights to 30,000 lb., power ranges to 165 hp. *Make us prove* the time and money savings advantages of an Austin-Western. Just write.

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PTEMBER, 19

ions like this are true pictures of the narket value of the respective pieces. Others, who were overbid, said in emiconfidential tones that these ame machines can be bought for less in the dealers' used-equipment lots. Whatever the case, the auction of used equipment has become popular and useful in liquidating surplus tocks, offering buyers rigs they need sometimes at bargain prices.

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A recent auction at Hubbs Bros. Equipment Co., Rialto, Calif., drew more than 400 registered bidders, who paid a total of nearly \$700,000 for a wide variety of machines that had a new value estimated at well in excess of \$1.5 million. While this equipment represents some 40 consignors, about 75 per cent of the dollar value was in repossessed equipment consigned

by the Southwestern Investment Co., San Diego.

The auctioneer, Jack Rouse & Son, Beverly Hills, conducts many sales of construction equipment as well as liquidations of manufacturing plants and other heavy auctions. As in this case, Rouse works with a number of contractors, dealers, and finance companies, gathering up enough equipment to insure a broad interest among prospective buyers.

#### Brochure advertises sale

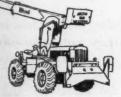
The equipment was marshaled at the yard of the Hubbs Bros. Equipment Co., which is conveniently located on the San Bernardino Freeway at Rialto.

The sale was well advertised in advance, primarily by an illustrated 8-



Spirited bidding and lively interest are evident as a group of motor graders goes on the block at an auction at Hubbs Bros. Equipment Co., Rialto, Calif. More than 400 bidders were out hunting for bargains, and many found them in the equipment sold during the day.





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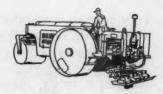
A-W HYDRAULIC CRANES

5 models. Capacities to 11 tons. Selfpropelled and truck or stationary mounting. "Live" hydraulic booms. Booms extend up to 48 ft.



A-W MOTOR SWEEPERS

2 models: 2-yd. Model 40; 4-plus Model 60. Safe, easy front steer; full visibility. Simplified design; broom and hopper in rear.



A-W COMPACTION EQUIPMENT

Variable weight 2 and 3-wheel rollers to 14 tons; 3½-6 ton portable; Roller-Compactor; vibratory attachment for most 3-wheelers. Also new 9-wheel Pneumatic Roller. page brochure circulated by mail to prospective bidders over a wide area. The brochure listed and described most of the major pieces to be offered and included pictures of many of the larger machines and some of the smaller ones.

Among the items listed were International and Caterpillar tractors, Allis-Chalmers and Caterpillar motor scrapers, P&H truck cranes, a variety of motor graders, tractor shovels, air compressors, trucks, pickups, and hundreds of other items. In size, the offerings ranged from the truck cranes down to air tools, small dragline buckets, and other auxiliaries.

#### Sale is well attended

On the day of the sale, some 500 people gathered at the site, and more than 400 were registered as potential buyers. As they entered the fenced yard, each potential bidder was registered and assigned a number by which his bids would be recorded.

Among those on hand for the auction were representatives of many of the major contractors in southern California, as well as a few from out of state. Several were from Arizona, and at least one came from as far away as Seattle. Others came from Hawaii, Nevada, Utah, and Oregon. In addition to the representatives of (Continued on next page)



Auctioneers Jack Rouse and son Bob handle their end of the business from a portable stand, with a loudspeaker system, which is simply wheeled along from one piece of equipment to the next as the sale continues throughout the day.

SALDWIN · LIMA · HAMILTON

For more facts use Roquest Card and circle No. 292



Auctions have relaxed, as well as tense, moments. Some of these bidders take advantage of seats on equipment as they wait for a special offering in which they are interested.

#### (Continued from preceding page)

larger firms, there were many smaller contractors and some individuals looking for a specific machine and keeping an eye open for a bargain.

Most of the better pieces drew spirited bidding with the prices getting above the "give-away" bargain class.

Some typical sales saw Cat DW20 scrapers going at from \$11,500 to \$15,000, late-model International TD-24 tractors at around \$7,200, a TD-25 at \$20,000, and air compressors at from \$375 to \$2,500.

One bidder, Vic Martin, who describes himself as a "small heavy contractor" or "poor man's Macco," bought a couple of dragline buckets, a clamshell bucket, two blacksmith forges, and a pickup at prices he said were real bargains.

The sale got under way at 10:30 a.m., and most of the bidders were still on hand late in the afternoon when the final items went on the block. Two well supplied lunch wagons on the grounds dispensed a steady stream of coffee, as well as a variety of sandwiches, pie, candy, soft drinks, etc. In fact, around noon, it was a little difficult to tell whether the sale or the lunch wagons were of primary interest.

As with most auctions, some bidders got bargains, some paid market value for what they bought, some probably got a bit excited and paid more than market, and others were consistently overbid and bought nothing. But the sale did serve to liquidate a considerable amount of equipment, providing cash where it was needed and getting the machines back to work.

The End

#### Trailmobile names

■ Trailmobile, Inc., Cincinnati, Ohio, has appointed J. F. Weiffenbach vice president of engineering. He formerly served as director of research and engineering for Borg-Warner Corp., Chicago.

Trailmobile has also named W. G. Gerow director of service. He will supervise parts and service activities at the truck-trailer company's four plants and 54 sales branches.

#### HRB reports on pavement; traffic-accident cost

■ Several new bulletins have been published by the Highway Research Board, Washington, D. C.

"Plexible Pavement Studies: 1960," No. 269, contains papers on the analysis of viscoelastic flexible pavements; a tentative flexible pavement design method for Florida; flexible pavement research in Virginia; deflection tests on Texas highways; and an analysis of stresses in flexible pavements and development of a structural design procedure. Price of the bulletin is \$1.60.

Bulletin No. 270, "Asphalt Characteristics and Asphaltic Concrete Construction," discusses the effect of short asbestos fibers on basic physical properties of asphalt pavement mixes; the sonic method of determining a hardening tendencies and water as ceptibility of paving asphalt; rheolo of bitumens and the parallel plate a croviscometer; and the design a construction of epoxy asphalt-on crete pavements. The bulletin is prin at \$1.40. marking ders and

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"Economic Cost of Traffic Actions," a 53-page bulletin, contains papers discussing the topic in relation to the highway, the vehicle, the man element, and highway planning The booklet. No. 263, is priced at at a

Bulletin No. 266, "Pavement he Markings, Shoulders and Median contains papers on the effect of pay ment edge marking on 2-lane nu highways in Ohio; the effect of se

THE USEFULNESS OF A LIMA

### HOW TO CAST FOR PROFIT

Long, precision casts with Lima draglines help pull in extra excavating profits. Limas are noted for fast, smooth digging cycles—partly the reason they are the most useful make machines you can buy!

But there is more to outstanding performance than meets the eye. It is backed up by Lima's traditional quality in manufacturing and design.

Big, wide drums are mounted on antifriction bearings for smooth, free spooling when the bucket is cast. Balanced machinery weight does away with need for excessive counterweight so that you can work with *long booms at low angles*. Long, wide crawlers hug the ground for extra stability on soft footings; antifriction bearings protect all wearing points. On Limas all gears, smaller parts and shafts that are subjected to extra wear are flame or induction-hardened for longer life.

Maintenance is low because Limas are better built. For the same reason Limas can be counted on to stay on the job and earn more profit for you. Ask us to prove it to you.

6120

marking on operator behavior; shoulders and accident experience on 2lane rural highways; cross-median accident experience on the New Jersey Turnpike; dynamic full-scale tests of median barriers; and a California median study in 1958. Price of the bulletin is \$2.80.

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All four bulletins may be obtained from the Highway Research Board. 2101 Constitution Ave., Washington 25, D. C.

#### White Motor constructs new branch headquarters

The White Motor Co., Cleveland, Ohio, is constructing a new truck sales and service branch headquarters building in Dallas, Texas.

The building will have 35,138 feet

of floor space on the ground floor for service, parts storage, and branch offices. The second floor, with 4,500 feet of space, will house headquarter offices of the southwestern region. A factory parts warehouse will be built adjacent to the new service branch to provide larger inventories and speed service to the company's branches and distributors in the area.

#### **B-L-H** division names

■ Austin-Western, Construction Equipment Division of Baldwin-Lima-Hamilton Corp., Aurora, Ill., has named George N. Geers a district service manager. He will cover the New England states, servicing all divisions of A-W equipment, including power graders, cranes, and rollers.

#### Convention Calendar

September 6-8 New York State County Highway Superintendents' Association Summer meeting, Concord Hotel, Kia-mesha Lake, N. Y. Harry R. Mason, sec-retary, 1420 Western Ave., Albany, N. Y.

September 11–15 and 18–22 Fundamental Principles of Nondestructive Testing

Summer conference course, Ohio State University, Columbus, Ohio. Dr. Robert C. McMaster, course supervisor, Department of Welding Engineering, Ohio State University, 190 W. 19th Ave., Columbus 10, Ohio.

September 14-15 Engineering Mun-agement Conference
Joint conference of ASME and AIEE, Hotel Roosevelt, New York, N. Y. Ameri-

can Society of Mechanical Engineers, Meetings Department, 29 W. 39th St., New York 18, N. Y.

September 20-22 Producers' Council
40th Convention
Annual meeting and chapter presidents' conference, Pittsburgh Hilton Hotel, Pittsburgh, Pa. Francis X. Brown, executive assistant, Producers' Council, Inc., 2029 K St. N.W., Washington 6, D. C.

September 24-27 Public Works Congress and Equipment Show
Show, Municipal Auditorium and Hotel
Leamington, Minneapolis, Minn. Bobert
D. Bugher, executive director, American
Public Works Association, 1313 E. 60th
St., Chicago 37, Ill.

September 25-28 American Welding

Society
Fall meeting, Adolphus Hotel, Dallas,
Texas. F. J. Mooney, convention manager, American Welding Society, 33 W.
39th St., New York 18, N. Y.

September 25-28 Industrial Building Exposition and Congress Exposition and congress, Coliseum, New York, N. Y. Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N. Y.

October 3-6 Ohio Short Course on Roadside Development

Twentieth annual course, Departments of State Bldg., Columbus, Ohio. W. J. Garmhausen, chief landscape architect, Ohio Department of Highways, 450 E. Town St., Columbus 15, Ohio.

October 4-5 National Slag Associa-

Annual meeting, Pocono Manor Inn, Pocono Manor, Pa. National Slag Associ-ation, 613 Perpetual Bldg., Washington 4, D. C.

October 8-11 County Division of the American Road Builders' Association Annual National Highway Conference, Broadview Hotel, Wiehits, Kans. Ben F. Ostergren, managing director, County Di-vision, ARBA, 600 World Center Bldg., Washington 6, D. C.

October 9-11 National Association of

Corrosion Engineers
North Central Region meeting, Chase
Park Plaza Hotel, St. Louis, Mo. Otto H.
Fenner, Monsanto Chemical Co., 1700 S.
2nd St., St. Louis 4, Mo.

October 9-13 American Association of State Highway Officials Meeting, Denver Hilton Hotel, Denver, Colo. Adolph Zulian, reservations chair-man, Colorado State Highway Depart-ment Denver Colo. man, Colorado Sta ment, Denver, Colo.

October 15-19 Prestressed Concrete

Institute
Annual convention, Brown Palace and
Cosmopolitan Hotels, Denver, Colo. Norman L. Scott, executive secretary, PCI,
205 W. Wacker Drive, Chicago 6, Ill.

October 16-20 American Society of

Civil Engineers

Annual convention, Statler-Hilton Hotel, New York, N. Y. Otis D. Gouty, assistant to the secretary, ASCE, 345 E. 47th St., New York 22, N. Y.

October 16-20 National Safety Coun-

cil National Safety Congress and Exposi-tion, Conrad Hilton Hotel, Chicago, Ill. R. L. Forney, secretary, NSC, 425 N. Michigan Ave., Chicago 11, Ill.

October 23-26 National Association

of Corresion Engineers
South Central Region conference and
exhibition, Shamrock Hilton Hotel, Houston, Texas. T. J. Hull, executive secretary, 1061 M & M Bidg., Houston 2,
Texas.

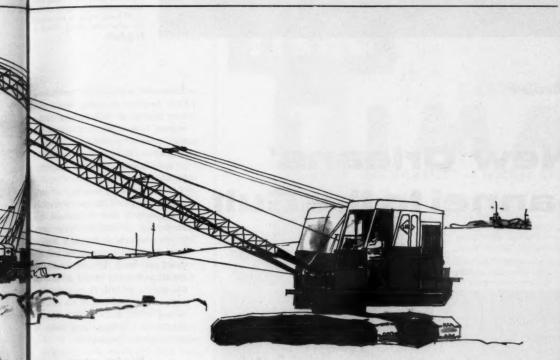
November 1–3 American Concrete Institute

Fourteenth regional meeting, Dinkler-Tutwiler Hotel, Birmingham, Ala. ACI, P. O. Box 4754, Redford Station, Detroit 19, Mich.

November 6-7 U. S. Government Con-

November 6-7 U. S. Government Construction Contracts Conference
Conference and dinner, Lisner Auditorium, George Washington University,
Washington, D. C., CoC, The National Law Center, George Washington
University, Washington 6, D. C.

November 27-30 American Institute of Steel Construction Annual convention, Boca Raton Hotel and Club, Boca Raton, Fla. L. Abbett Post, executive vice president, AISC, 101 Park Ave., New York 17, N. Y.



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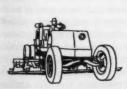
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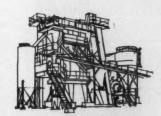
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DRAGLINES-Variable TRUCK CRANES-20 to 80 tons, boom-jib combinations to 250 ft. WAGON CRANES-20 to 75 tons CRAWLER CRANES-15 to 140 tone CRAWLER MOUNTED SHOVELS-% to 8 cu. yd.

CRAWLER MOUNTED PULLSHOVELS-to 41/2 cu. yd.



LIMA MODEL D ROADPACKERing shoes consolidate fast, profitable single-course construction; available in 12-shoe Super model.



LIMA MADSEN ASPHALT PLANTS

—available in models with batching capacities from 1000 to 10,000 lb.



LIMA AUSTIN-WESTERN portable and stationary crushing, screening and washing equipment; including jaw crushers, feeders, screens, elevators, conveyors, bins.

DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD

LIMA Construction Equipment Division • Lima, Ohio BALDWIN · LIMA · HAMILTON



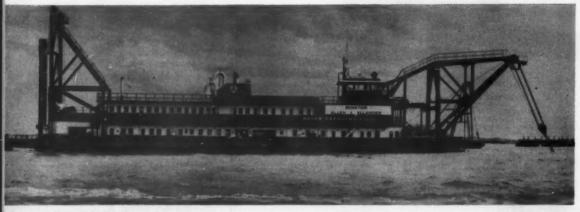


Three cutterhead dreds working on the New Orleas outlet channel to the Gulf Mexico chew away at its silty soil near the open was of Breton Sound. The sattructure of the stone retes tion dike extends 3 miles into open water. The light-colore spoil area, right, is contained by retaining dikes about 3 feet high.

New dredges with high production work at low unit costs in

## Cutting New Orleans' outlet channel to the Gulf

by BILL ALLEN, field editor



Christened only five months ago, the 27-inch dredge Senator Allen J. Ellender is the spearhead of the Bauer Dredging Co.'s fleet working on the channel. It boosts the most modern dredging equipment; its main engine is a Cooper-Bessemer LSV-16T with maximum horsepower of 5,450 at 340 rpm.

SE FT. SOOT OHANNEL SOUND DIKE DIKE SOUND SOUND

The heavy solid line shows the route of the new outlet channel that will run from New Orleans to the Gulf, providing a navigable channel 500 feet wide and 36 feet deep. Retention dikes will keep currents from depositing silt in the channel.

Improved construction technique and modern dredging equipment have helped put New Orleans' outs channel to the Gulf of Mexico a further width channel for the entire of miles is expected to be complete by late next summer.

As the dredging has pushed outward from New Orleans, contractor have learned how to handle the soupy soil of the low-lying area. They've brought in big new dredge that stepped up production and reduced unit costs. They've brought is special equipment to get around on the marshy ground. Dredge captains with several contracts on the channel behind them, know exactly how to handle their dredges and crews to get maximum production.

#### Bid prices go down

Familiarity with the work has helped to bring bid prices down. At the beginning of the project, uniprices on the dredged excavation were 17 to 15 cents per yard. At the Gulf end of the project, dirt has been going from 12 to 5½ cents per yard. Increased competition among entractors has also tended to lower his prices.

Low bid prices have meant the work has been getting done a considerably below the engineer estimates. The U. S. Army Corps of Engineers, supervising construction of the project, has been left will "money in the bank," and the fund have been used to award additional contracts that have further specific construction.

Shipping companies look with favoupon the stepped-up progress of the construction. By September of 188 the companies hope to have the freighters moving effortlessly up to 250-foot-wide 36-foot-deep chanform the Gulf to New Orleans. At the present time, their ships must fail the current of the Mississippi at winds on a 110-mile route to the Crescent City. Full use of the chamfor shipping, however, is not select

CONTRACTORS AND ENGINE

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The 24-inch cutterhead dredge Port Arthur, owned by Williams-McWilliams, Inc., New Orleans, widens and deepens the 140 X 18-foot access channel to form the interim channel. This second stage of the work leaves the channel 250 feet wide and 36 feet deep. It will later be widened to its full 500-foot width. The discharge line passes over the boggy ground and across the retention dike at left.

uled until 1967. By this time, the entire 76 miles of channel will be dredged to full project width of 500 feet at a depth of 36 feet.

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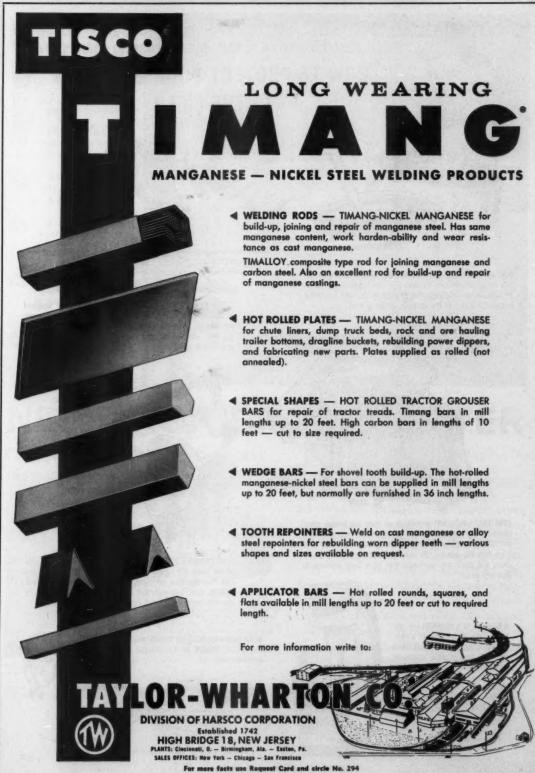
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The big ditch begins in New Orleans at the intersection of the Inner Harbor Navigation Canal and the Gulf Intracoastal Waterway, about 2 miles north of the Mississippi River. The channel follows the general course of the Intracoastal Waterway in an easterly direction for 5½ miles. It then swings southeasterly through marshlands to its outlet in Breton Sound in the Gulf of Mexico. The last 26 miles of the channel is in open water.

#### Big dredges move in

The dredging of the New Orleans end of the channel started in the spring of 1958, when the first two contracts were awarded to Jahncke Service, Inc., New Orleans, for the dredging of the first 5 miles of the project to full channel width. Since that time, many other contractors with high-powered dredges have been pushing steadily toward the sea. A significant point was reached six months ago when a 24-inch dredge, owned by Bauer Dredging Co., chewed its way through to open water in the Gulf. Behind the dredge was about 23 miles of 140 × 18-foot access channel, 15 miles of 250 × 36-foot half-width channel, and 5 miles of full-width channel. At the present time, the access channel is constantly being widened and deepened to form the half-width or interim channel. Dredges are working in the shallow water of the Gulf to extend the channel to the 38-foot contour of the ocean's bottom. Rock is being placed on the stone dikes that border the first 3 miles of the open-water

As of the middle of May, the Corps of Engineers had awarded 22 contracts on the project totaling \$20,-802,302. The work has been shared by many contractors. Among them are Bauer Dredging Co., Inc.; Jahncke (Continued on next page)



Service, Inc.; Williams-McWilliams
Inc.; T. L. James & Co., Inc.; Sabins
Dredging & Construction Co.; National Bulk Carriers, Inc.; Mic
Hooks, Inc.; Great Lakes Dredge &
Dock Co.; Standard Dredging Corp.;
Sam Carline, Inc.; and Bertues
Bros. Construction Co.

#### Three-stage dredging

On the land portion of the channel, the dredging is normally done in three stages. The operation is spearheaded by digging a 140 × 18-fore access channel. Later this channel is widened and deepened to form an interim channel—250 feet wide and 36 feet deep. After the interim channel is completed for the entire length of the project, the dredges will 50 back and widen the channel to a final 500 × 36 feet.

Before excavation can start, the contractor must build retaining dikes on one side of the channel to hold the soupy discharge from the dredge. The two main dikes, which are about 4,000 feet apart, parallel the channel. Cross dikes help to contain the fill, and sluiceways permit the water to flow from the dike area.

Large floating rigs, handling clamshells, build the dikes to a height of 4 to 6 feet above the natural ground. Holding this height is a problem, for the dikes tend to settle into the marshy ground. Several contractors have found that a marsh buggy mounting a ¾-yard dragline is a handy piece of equipment for maintaining the dikes. The amphibiourig can move over the swampy ares with ease. The machine is also useful for carrying lengths of discharge pipe.

#### New dredge

Big cutterhead dredges suck the muck from the channel and spew if out between the retaining dikes. At one time as many as 11 dredges were working at different points along the length of the channel. These 20 and 24-inch dredges work 24 hours a day, seven days a week—with time out for Christmas. Production average about 300,000 cubic yards per day.

Bauer Dredging Co. recently christened a 185-foot-long sea-going hydraulic dredge that is now at work
on the project. Named the Senator
Allen J. Ellender, this modern beauty
has a 27-inch discharge and a 5,450hp Cooper-Bessemer main engine. Its
84-foot ladder has a 28-foot extension for digging to depths of 90 feet.
The cutterhead dredge has a unique
control panel. It allows the operator to read bearing temperatures inside the babbited bearings of the
engines. The panel gives warning before oil temperatures become critical

#### Stone dikes protect channel

In the area where the channel enters the Gulf, it is protected on each side by a stone retention dike. There are 3 miles long and rise to a height of about 6 feet above the water. The dikes protect the channel from being filled in by silt carried by ocean currents. Outside the 3-mile limit, it is expected that maintenance dredge.

The Conical, owned by Great Lakes Dredge & Dock Co., builds retaining dikes for the spoil with its 240-foot boom and 10-yard clam bucket. The barge on which it is mounted is concealed by grass at this point. Dikes are built 4 to 6 feet above water; cross dikes help to contain the fill, and sluiceways allow water to escape.



## HOW TO PROTECT YOUR BEARINGS IN THE FIELD



DIRT AND MOISTURE DID THE DAMAGE. The bearing ring on the left failed prematurely because fine dirt particles acted as an abrasive, causing wear. The bearing on the right had to be replaced because of the abrasive action of rust.



START WITH PROPER STORAGE. New bearings come wrapped in dustproof paper. If this wrapping is opened or torn, wash the bearing. Use a clean pail of kerosene or light oil. Dry bearing with compressed air, then dip in anti-rust compound, rewrap and box.



LOVE THAT LUBRICANT and those oil cans and grease guns! Clean oil and grease will carry dirt out when they purge the old lubricant. Whereas, dirty oil and grease carry dirt with them into the bearing. So keep your lubricating equipment clean and don't use lubricants that have been exposed to dust and dirt.



SAVE YOURSELF SEAL TROUBLE. Replace bent or worn seals (which allow dirt to enter) when you install or inspect bearings. You can now get tight, effective double-lipped TySeal tapered roller bearings that fit exactly the same space as standard unsealed tapered roller bearings.

A BEARING IS A BARGAIN! For relatively little money you get a bearingly little money you get a bearing that's made of fine steel which has been heat treated, machined, polished, tested and checked over 100 times. Treat your bearings right and they'll give you the thousands of hours of operation for which they're engineered.



SKF MOTION ENGINEERING

BEAR DOWN ON BEARING DOWNTIME-RELY ON THE

TECHNICAL SERVICE OF AUTHORIZED ABOST

Advanced ball and roller bearing technology

For more facts use Request Card and circle No. 295

CONTRACTORS AND ENGINEES

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CENTRAL



Nearing the open water of Breton Sound on the Gulf, the 24-inch cutterhead dredge J. J. Mansfield, owned by Bauer Dredging Co., Inc., cuts out the first-stage access channel. In the background is the 20-inch cutterhead dredge Galveston, owned by Mike Hooks, Inc., which is cutting out the full channel width to make way for a pipeline crossing.



The cutterhead of the J. J. Mansfield bites off the last few inches of marshy land separating the channel from Breton Sound. This point is about 43 miles from the beginning of the project in New Orleans.

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In a country of mud and water, building a rock dike can be a problem. With time-tested construction methods, however, the difficulties can be overcome.

Rock is barged in from nearly a thousand miles away. It is placed on a shell blanket between two underwater dikes on the bottom of the Gulf. The dikes, which are about 70 feet apart, retain the shell. The shell supports the rock, preventing it from sinking in the mud. The lower portion of the rock dike is built first and allowed to settle for about one year. Then the dike is topped out to final elevation of plus 6.

Col. George M. Cookson, district engineer, New Orleans District, is supervising the construction of the Mississippi River-Gulf Outlet Project.

#### Symons men receive Metal Trades awards

■ Five members of the production staff of Symons Clamp & Mfg. Co., Chicago, Ill., received awards recently at the 63rd annual meeting and supervisory graduation dinner of the National Metal Trades Association at the Conrad Hilton Hotel in Chicago.

Henry Sarnacke was a master certificate graduate, and Lewis Youngs, Robert Jauch, Larry Wolverton, and Walter Gaines were course graduates of the association school.

### B&D appoints two, opens new branch

The Black & Decker Mfg. Co., Towson, Md., has named C. Vernon Allen sales representative in the Consumer Products Division. He is assigned to the Cincinnati district and will work in the Indianapolis-Fort Wayne area.

W. A. Winkel has been named sales representative in the Industrial-Automotive Division of the company. He will cover the metropolitan area of the San Francisco district, replacing J. A. Smith who has been transferred to Fresno.

The power-tool firm recently opened a new service branch in Grand Rapids, Mich.

ROTARY BURNER
eliminates nozzles and
nozzle clogging

GLOW-COIL IGNITION

eliminates electrodes and electrode adjustments

O LOW PRESSURE FUEL INJECTION far less maintenance

ADJUSTABLE
HEAT OUTPUT
70,000 to 125,000 BTU

ADJUSTABLE AIR DISCHARGE ELEVATION

-see photo below

AUTOMATIC CUT-OFF WHEN FUEL SUPPLY FAILS

completely safe!

CLEAN BURNING



## **NEW THOR SPACE HEATER**

### Costs less to operate, far less to maintain



LIGHTWEIGHT AND COMPACT. Thor's space heater weighs 42 lbs. Can be handled easily by one man. Heater can be carried through standard door openings.



SIMPLE CONTROLS are panel mounted for operator convenience. Air discharge can be elevated easily for heat direction with adjustable heat output from 70,000 to 125,000 BTU. The Thor heater can operate from any Thor portable electric generator or central AC power source.

Thor introduces a completely new concept in space heaters—a high performance, oil-fueled heater which costs less to operate, far less to maintain. Reason? Thor simplicity of design and construction. Check these features then see them at your Thor construction equipment distributor: Rotary burner, no nozzle or electrodes. Low pressure fuel pump. Clean burning, no smoke, no odor. Automatic electric ignition. Completely safe, cuts off automatically when fuel supply fails. Thor Power Tool Company, Aurora, Illinois.

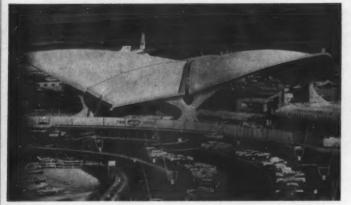


#### THOR POWER TOOL COMPANY

AURORA, ILLINOIS

ATLANTA • BIRMINGHAM • BOSTON • BUFFALO • CHCAGO • CINCINNATI CLEVELAND • DENVER • DETROIT • HOUSTON • INDIANAPOUS • KANSAS CITY, MO. LOS ANGELES • MILWAUKEE • NEWARK • NEW YORK CITY • PHILADELPHIA PITTSBURCH • BICHMOND • ST. LOUIS • SAN FRANCISCO • SEATILE TORONTO, ONT., CAN. • EXPORT DIVISION, NEW YORK CITY

For more facts use Request Card and circle No. 296



## Mix design achievere

Concrete work on the 1½-acre thin-shelled roof of the TWA passenger terminal at Idlewild International Airport in New York City was preceded by over two months of study, analysis, and computation, so that the job could be handled with maximum efficiency. Supported by four concrete buttresses, the finished shell weighs 5,500 tons, and contains 3,200 cubic yards of concrete and 500 tons of steel. Architect for the structure was Saarinen & Associates, the consulting engineer was Ammann & Whitney, and the general contractor was Grove, Shepherd, Wilson & Kruge, Inc., New York City.

A spectacular round-the-clock concreting operation completed the four shells for the 1¼-acre roof of the TWA passenger terminal at Idlewist International Airport in New York; overshadowed by the job was the equally important two months of preparatory work that made the field operation go without a hitch.

Two months of study, analysis, and computation resulted in a complete manual covering every detail of the job for the 5,000-ton arch cantiless.

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#### Metal Lath association publishes 4 bulletins

■ The Metal Lath Manufacturers Association, Cleveland, Ohio, has published four new technical bulletins.

Technical Bulletin No. 13, "Sound Insulating Double Partitions," gives detailed sound-transmission loss data, with tables showing values for double partitions of various thicknesses, and values obtained when using various insulating materials between the partition system and the supporting floor.

"Metal Lath and Plaster Solid Partitions with Channel Studs," Technical Bulletin No. 5, describes the solid partition and outlines the assembly's versatility, fire resistance, sound insulation, and sanitary qualities. Specifications are given for erection of studs, ceiling attachments, floor attachments, door frames, plastering, wood grounds, and tilework.

Revised Technical Bulletin No. 7, Supplement No. 1, "Size and Spacing for Prefabricated Metal Studs," provides architects and engineers with data to enable them to accurately specify complete requirements for prefabricated metal studs and metal lath. The booklet contains detailed illustrations of wall-supporting fixtures.

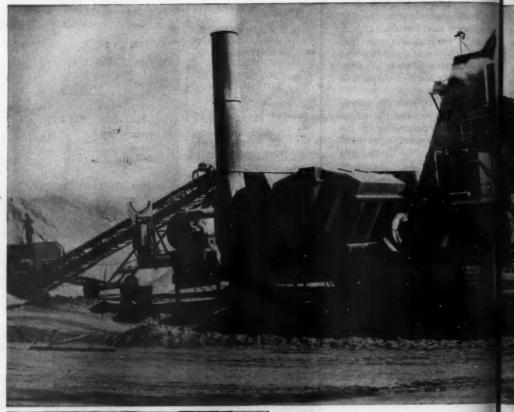
"Fire-Resistive Ratings," Technical Bulletin No. 8, includes complete fire-resistive ratings of metal lath and plaster systems. The bulletin, which gives details on many types of fire-resistive construction, is divided into specific categories for steel, castiron, and timber columns; steel beams, girders, and trusses; and several types of floors. Complete construction descriptions are given.

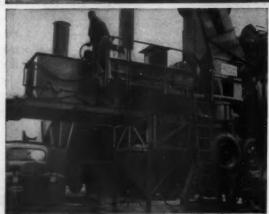
Free copies of the bulletins may be obtained by writing to the Metal Lath Manufacturers Association, Engineers Bldg., Cleveland 14, Ohio.

#### Lincoln Electric names

■ The Lincoln Electric Co., Cleveland, Ohio, has named Donald A. Dumuth to its staff of field engineers. He has been assigned to the company's Chicago district office. Dumuth recently completed a one-year training program at Lincoln.

# BEATS TOUGH DEADLINE WIT 75 JOB-TO-JOB MOVEN 1:





HIGH CAPACITY of Leone's 848-A plant permit plying hat mix for two separate projects simulta Domenic Leone's experience with Barber-Greene ous type plants is best summed up by the maintena ord—over 700,000 tons of mix produced at a main cost of 2¢ per ton. Plant is shown operating near Ju Colorado, one of four locations required on the ja

UNMATCHED PORTABILITY of Leone plant per teardowns-moves-setups in as little as 11 working Closeup shows wheel mounted units and individual in lic jacklegs with built-in leveling devices on case that cut moving time. Large pugmill, ductwork the as integral part of plant components plus many one compact component features all helped increase per tion and mobility.

O. 1 FINISHI ral duty mode uty model; con apacity SA-60 of crowler or rul

SEPTEMBER,

## recise concrete control

roof, which has four monolithic shells, flowing out of four sculptured buttresses, joined integrally at a center plate. Shells vary in thickness from 8 inches at the perimeter to 44 inches at the center plate. Saarinen & Associates conceived the structure, which was reduced to plan by Amann & Whitney, structural engineers. Grove, Shepherd, Wilson & Kruge handled construction.

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In designing the mixes for the shell and buttresses, special consideration had to be given to four factors. The mix had to have the lowest possible unit water content and low cement content to minimize shrinkage; there had to be careful control of slump, which had to be varied for different areas of the shell; setting time had to be retarded enough to assure a completely monolithic shell; and setting time had to be varied according to a predetermined schedule so that there could be an orderly removal of counter-

forms or top forms and allow for finishing to final contours.

Other mix design problems involved the selecting of a coarse aggregate for the normal-weight concrete of the buttresses and a lightweight aggregate for the shells. Both aggregates had to be of the same color to produce an over-all uniform appearance for those areas that would by bush-hammered to achieve the surface texture desired. A low rate of heat evolution was de-

sired in the buttresses and in the thick sections of the shells to prevent thermal stress and cracking. Strength of 4,000 psi at 28 days was specified for both the conventional and lightweight concrete.

#### Mix design

The contractor, engineer, and architect worked with Haller Testing Laboratory, Inc., and the Master Builders Co. in the design of these mixes to meet requirements:

#### Concrete for buttresses

Cement	564	pounds	
Sand		pounds	
Trap rock	1,885	pounds	
Pozzolith		pounds	
Water	32.6	gallons	
Air	4	per cent	
Slump	5	inches	

#### Concrete for shells

Cement	614	pounds
Sand		pounds
Norlite	945	pounds
Pozzolith	1.6	pounds*
Darex	1.6	pounds
Water	38.7	gallons
Air	5	per cent
Slump	5	inches
* Amount varied	upward as	rstardation

Three test models were constructed to simulate the placing conditions that would be experienced in different shell areas, and these duplicated the angle of incline and the contours of the shell, and the amount of intricate reinforcing steel in these areas. Work with models showed that counterforms would have to be used where the slope of the shell was steep, and that 5-inch slump was necessary to achieve easy placement of concrete beneath the counterforms. In the less steep areas, where counterforms were unnecessary, concrete could be placed with 3-inch slump without flowing or sagging down the slope.

In addition to working as a waterreducing, plasticizing agent, Pozzolith was used to control setting of the mixes. When work got under way, the concrete superintendent advised by walkie-talkie the amount of retardation desired for each truckload of concrete; technicians from Master Builders added the amount desired at the admixture dispatching stations. The range of retardation was one to four hours beyond the normal setting time of the mix. Automatic dispensing equipment at the dispatching stations facilitated accurate addition of the material in amounts ranging from 0.25 to 0.40 pounds per sack of cement. In adding the material, the technicians took into account temperature changes in the 24 to 30hour period when concrete was placed for each of the shells.

Once formwork was built over scaf-(Continued on next page, col. 4)

## IT 75 T.P.H. CAPACITY, VEN 11 HOURS

Colorado contractor licks tight schedule on scattered three-project, 64,270-ton contract with 275 t.p.h. average production, speedy teardowns and setups

To keep pace with multiple scattered jobs being let as single contracts, the Domenic Leone Construction Company, Inc. of Trinidad, Colorado:

 Purchased a new high-tonnage, quick-moving Barber-Greene 848-A Continuous asphalt plant.

 Successfully bid a contract that included three scattered paving projects located within a 50 mile radius.

• Beat the tight \$400,000 contract completion date by two full weeks. Domenic Leone, a Colorado contractor since 1921, and son John report: "We didn't have enough capacity or portability to handle this type contract with a single plant until we got our new Barber-Greene 848-A. But this 848-A backed up our bid all the way. We averaged 275 tph for the entire total of 64,270 tons mixed and worked both our Barber-Greene finishers on different projects at the same time. And our crew reduced plant teardown-move-setup time to as little as 11 working hours during this three-job contract. That's why we wound up the job two weeks ahead of schedule."

Price Hargrove, plant superintendent, adds: "Getting needed high tonnage was easy with this all-electric, automatic plant with its high tonnage pugmill and king-sized dryer. And this baby was sure designed for fast moves with ductwork being integral with each unit, power integral with each unit, and individual hydraulic jacklegs with built-in leveling devices on plant components."

See your Barber-Greene Distributor for the asphalt plant that backs up those tight bids with high capacity lowest cost production.

6. 1 FINISHER LINE includes: new SA-40 genal duty model, shown; 879-8 economy general style model; compact 873; and heavy duty high procity SA-60 and S8-60 models offering a choice tawler or rubber tire mounting.

World's No. 1 Manufacturer of Asphalt Paving Equipment



CONVEYORS . LOADERS . DITCHERS
ASPHALT PAVING EQUIPMENT

FOUR-FOOT-DEEP OVERBURDEN from a quarry stripping operation by Blue Ridge Stone Corp., Blue Ridge, Va., is loaded into an International Model 65 Payhauler, while another Payhauler waits in the foreground. The trucks are moving the overburden a quarter mile to a spoil area. They will later haul the rock to the crusher where limestone products will be processed for base material for local road construction.





### Together, fellow fasteners, we can build an empire!

There are 125 different kinds of us, all strong and true and ready to carry our share of the load! We're powder-actuated and we mean business. We have threaded studs and drive pins (super-anils!). There's tall ones, short ones, in-between ones; there's fat ones and there's lean ones. Every last one of us can ram home into steel or concrete with ease. One every fifteen seconds. We can attach things down on, up against and suspended from. With our eyepins the Hanging Gardens of

Babylon would still be hanging! We're the kingpins. We're the elite. We're austempered, to a man. A tougher group you'll never find. So give us a chance, that's all. Give us a chance and by the George Washington Bridge we'll build you an empire!

Our dealers are assistant empire-builders, but they're listed in The Yellow Pages under TOOLS. Talk to them about your empire. (Among other things, they'll Ramset\*

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For more facts use Request Card and circle No. 298

(Continued from preceding page)

folding for the roof shells, the concrete for the center plate and four sculptured buttresses was placed. The center plate acted as a bulkhead against which the four shells were placed and also provided a control station for subsequent operations.

Three 180-foot, 45-ton crame hoisted the concrete to the roof in 1-yard loads, with each bucket color-coded with paint to assure that the mix was deposited in the proper area of the shell.

When work began, inspection crews of engineers and carpenters were at key positions under the roof at ground level, and through a system of hanging plumbs, they were able to detect the slightest movement in the formwork and radio the information to a central control station so that the next bucket of concrete could be directed for placement at a point that would compensate for form movement.

The counterforms, 2 × 4-foot tions of plywood prefabricated and designed for easy removal, were fastened to %-inch screed bars in lag bolts. When concrete beneath a counterform had stiffened enough that it would not flow down the steen slope, the form was removed and the surface finished with a pair of shaped templates. About a dozen of these templates were clearly identi fied for use on specific areas of the shell-one for screeding the co crete in the direction tangent to th circumference and the other for screeding perpendicular to the radii

The field-side shell required \$60 yards of concrete placed in as around-the-clock operation of 25 hours. The front shell took 449 yard in a 24-hour period. Each side shell required 1,006 yards, which was placed in 30 hours.

## Oliver names personnel; reorganizes branches

■ Oliver Corp., Chicago, Ill., h made several new appointments.

Harold E. Coffman has been name sales promotion manager of the firm With Oliver since 1955, he has serve as assistant director of manufacturing budgets, territory manager, as sales and market analyst.

William O. Wheeler has been as pointed assistant to Oliver's industrict division manager. He was former industrial sales supervisor at the South Bend, Ind., branch.

Edward F. Nelson is now sales manager in the Indianapolis territory. It succeeds E. C. Hood, who has bestransferred to the Peoria branch sales area.

Oliver has expanded the staffs and operations at its sales branches a Lansing, Mich., and Indianapola Ind., and closed the South Bend, Ind. office. Lansing operations are supervised by the Columbus, Ohio, branch Indianapolis by the Peoria, Edwardh

Henry A. Parker, former brand manager at South Bend, is now manager of the Oakland, Calif., brand

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CONTRACTORS AND ENGINE

### **Avoid legal pitfalls**

## Contractor entitled to recover expense

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THE PROBLEM: The prime contractor on a federal construction project sublet the haulage of heavy steel equipment to tower sites. When the subcontractor sued to collect pay, the prime contractor counterclaimed for the cost of replacing a bridge destroyed when the subcontractor's overloaded truck was driven over it. Did the facts justify the counterclaim?

THE ANSWER: Yes. (Oregon Transfer Co. v. Tyee Construction Co., 188
Federal Supplement 647, decided by the United States District Court, Oregon.)

The prime contract provided: "The contractor shall maintain all roads used by him and upon completion of the job shall leave them in as good a condition as when first used by him," and "cleaning up shall include the full restoration of all property . . . damaged during the . . . work."

The subcontract specified: "The subcontractor assumes all liability for injuries to persons or damage to property as a result of the performance of his contract, and shall indemnify the contractor against any loss or liability by reason of such injury or damage."

The court decided that the bridge must be regarded as part of the road it served, and so the prime contractor was bound to replace it.

Any negligence of the prime contractor in failing to inspect the wooden bridge was only passive and could not be brought into play by negligence of the subcontractor when its employee, without making inspection, drove the truck over the bridge with 5% tons greater load than was permitted by state highway regulations. The prime contractor was entitled to recover expense in replacing the bridge, which collapsed under the weight of the truck, either on the basis of indemnity provisions of agreement between it and the subcontractor, or on the basis of common-law

## Contract to lay

The Problem: Plaintiff company contracted to lay a 7-mile-long water main for defendant city. The contract provided that the contractor would accept \$1,423,956.87 "in full compensation therefor (except as adjustments are made in the quantities at the unit prices in the proposal, and as a result of additional, omitted, or changed work) . . . with payments made in the manner prescribed in the specifications." The work required less

These brief extracts of court decisions may aid you. Local ordinances or state less may alter conditions in your community. If in doubt consult your com attorney.

rock and paving excavation than had been estimated by the city engineer. The contractor accepted payment, in addition to that called for by the contract, for materials used in excess of estimated quantities.

Points raised were these: (1) Was the contractor entitled to collect more than for the work actually performed, on a theory that the contract impliedly warranted that the work would require the full estimated rock excavation? (2) The contract was based upon bidding specifications that set forth a variable list of quantities

upon which unit prices were to be bid, but did not list pipe laying, and the quantity of pipe to be laid was not a variable item. The length of the line and the size of the concrete were precisely fixed. The contractor voluntarily included those items as variable and accepted the hazard involved in whether excavation and pipe laying would be required through unclassified material or solid rock. Had there been as much solid rock as had been estimated, the contractor would have been paid the unit price for excavating rock, \$16.44 per cubic yard, in-

stead of \$6.16 payable for laying pipe in unclassified material. Did the contract impliedly warrant the accuracy of the estimate?

COURT'S ANSWERS: (1) No. (2) No. (Samuel Kraus Co. v. Kansas City, 315 S. W. 2d 758, decided by the Missouri Supreme Court.)

The court reasoned: The claim on account of variation from the estimates as to the character of excavation to be encountered was weakened by the contractor's omission to show that the "underruns" of rock excavation involved any loss by way of ex-

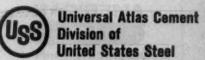


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Concrete blocks in a range of new designs . . . colors . . . and textures are being used to create unusual and distinctive effects in masonry construction. For structural or decorative use, indoors and out, the economical concrete block is now a major design element in today's building plans. And to lay up these new concrete masonry units, Atlas Masonry Cement continues to be the preferred basic material for mortar. It helps produce a smooth, workable mix . . .

assures a stronger bond . . . gives weathertight joints that are uniform in color . . . complies, too, with ASTM and Federal Specifications. For information, write: Universal Atlas Cement, Dept. M, 100 Park Avenue, New York 17, N. Y.

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#### Quarry company won county zoning suit

THE PROBLEM: A county zoning ordinance was so modified as to further restrict the use of land for manufacturing in a district near a residential district. Many years before the modifying ordinance was

adopted, a stone-quarry operator had acquired a tract with a view to eventually quarrying its reserves of limestone. In the meantime, he was using it for switching cars used in conveying overburden and crushed stone, and for stockpiling. Was the particular tract exempt from operation of setback provisions of the modified ordinance?

THE ANSWER: Yes. (County of Du Page v. Elmhurst-Chicago Stone Co., 165 N.E. 2d 310, decided by the Illinois Supreme Court.)

Admittedly, if the land reserved as a future source of limestone was to be regarded as an integral part of the company's present operations, it was covered by a provision of the zoning ordinance amendment exempting from new setback requirements land

devoted to the company's operations when the amendment was adopted. The court rejected an argument that land held principally as a future source of quarry stone is subject to such an ordinance amendment if it is used as part of the owner's present operations.

The court reasoned that in a quarrying business the land itself is a material or resource. It constitutes a diminishing asset and is consumed in use. Under such facts, the ordinary concept of use must yield to the realities of the business and the nature of its operations. In cases of a diminishing asset, the enterprise is 'using" all that land which contains the particular asset and which constitutes an integral part of the operation, although a particular por-

tion may not yet be under act excavation. It is in the very nature such business that reserve areas maintained. Obviously the compa cannot operate over an entire tra at once.

Under the circumstances, the pro erty in question must be considered part of a single enterprise or b ness, in continuous operation at t time the ordinance became effec and for a long prior period.

#### **Contract agreements** partially illegal

THE PROBLEM: Plaintiff, an neer, knew that the prime contrac on an Atomic Energy Commiss project was about to sublet cert work. He interested defendant, an gineering company, in bidding for subcontract. Under an agreement tween plaintiff and defendant plaintiff used personal influence secure official listing of the defend as an eligible bidder. That part of t agreement was illegal insofar as provided for the payment of a contingent upon obtaining a contr for work on a federal project. But the plaintiff also prepared estimates other engineering data under w the defendant secured the de subcontract. If the plaintiff's agr compensation for services was so se arable that there could be an allo tion of pay for services that were illegal, was he entitled to collect these services?

THE ANSWER: Yes. (Browne v. R. Engineering Co., 264 Fed. 2d 219, 6 cided by the United States Court Appeals, Third Circuit.) The decis set aside a contrary decision by t United States District Court for Del ware (164 Fed. Supp. 315).

With one of the three judges of the Court of Appeals dissenting, the o decided:

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Under a contract for illegal serv for specific compensation, the con will not enforce payment of the sonable value of such services. plaintiff also rendered services th were lawful. He performed techn work requiring engineering skill. prepared estimates and other d He worked on some administra problems. All of these services incidents of the internal function of the defendant's business, and performed in his shop and in the cal community. True, most of work was useful in preparing but it did not involve dealing by plaintiff with those responsil letting public contracts. It did appear that his participation in paring such material was even l to any person concerned with awarding of contracts.

The work involved no more " ing or securing" a contract would the work of a typist who bids in final form, or a photos who had taken pictures for s sion in support of a bid.

Plaintiff could not have o payment had all his servi and illegal, been payable,



record to say about POSITIVE-PRES-"Anything that steel will cut, this backhoe

"Ripping through layers of hardpan and sand without chopping, we find less cave-ins, less hand work and more production."

"Any non-believer can check with me because it's the best digging hoe I've ever seen.

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"It will dig in rock and hard materials where other machines couldn't without shooting. We haven't had any problem digging through 30 inches of frost."

"We dug all the stone to here, but now the 50 feet has made is necessary to use a jackhammer; it is almost solid, and you need the jackhammer. I don't think a similar machine could have dug this trench so far without the POSITIVE-PRESSURE.

"Provides greater production, enabling us in many cases to penetrate rock that would normally require blasting."

"No matter how deep we're digging, and even in tough shale and rock, the boom stays down and we get a heaped dipper every pass. This . . . helps increase our production at least 30% and sometimes greater."

No other backhoe - bar none -- can match the output of an AMERICAN POSITIVE-PRESSURE backhoe in rock, shale, frost ... or in easy dirt, For all its advantages, the POSITIVE-PRESSURE system is remarkably simple and trouble-free. No pumps, no powered mechanisms of any kind. Fully automatic. It's the biggest advance in backhoe design in years. And it's an AMERICAN exclusive. Available on any AMERICAN backhoe, new or in the field, ½ to 4½ yards. You should know more about it.

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plished nowhere else in the industry. MACK BALANCED DESIGN results in vehicles whose engines, clutches, transmissions, carriers, axles and suspensions work in close harmony. No trucks assembled with purchased components can achieve the uncommonly smooth, powerful, responsive and economical performance built into each Mack.

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# DESIGN



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The manufacturing concept which enables Mack to build BALANCED DESIGN into its vehicles also enables Mack to assume full responsibility for every truck or tractor bearing the famous Mack bulldog. You get this Undivided Responsibility because Mack alone insists on building its own major components. Competitive manufacturers without exception, buy many, if not all, of their components from outside vendors. Who guaran-

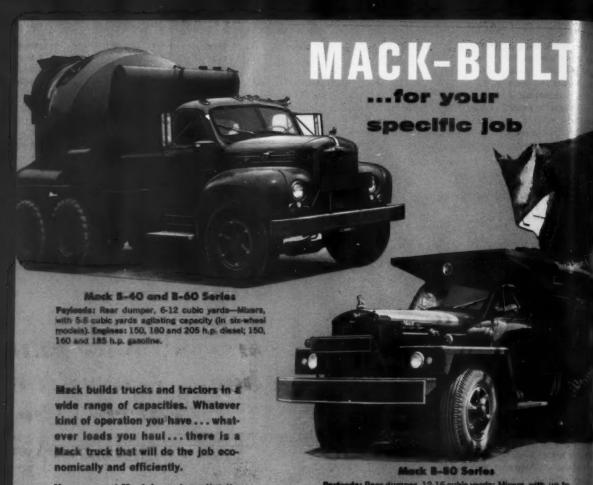
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om-ACK lose ers, harased only tees these components? Who provides adequate service on them? Sometimes the truck manufacturer... sometimes the component manufacturer. Too often this means split responsibility and costly downtime.

manufacturer. Too often this means split responsibility and costly downtime.

There's none of this when you buy a Mack. Because Mack insists on building its major components, Mack assumes Undivided Responsibility for the entire vehicle. We build it . . . and we stand behind it 100%.

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district to the differen the repudie low bid the trict was en "The cor tion is such cinal shall on said the require oe of ntract ar ful perform is obligat erwise, will pay un ence in mor the bid of ount for rally cont perform th ount be but in no e



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But there was no lump sum agreed upon and no indivisible consideration. The parties did reach a general informal understanding that he would be compensated for his services if the defendant should get government work. But no agreement was reached on the amount of compensation.

The dissentin 7 judge said: "The principle enunciand by the majority an unfort sate one, for it will e an unusual ca. here the ingenuity of counsel and the imagination of a plaintiff will not be able to cull out es which, it can be asserted, were not rendered in connection with the solicitation or procurement of a wrnment contract. In my opinion. if the majority view prevails, the salutary effect of the Executive Order and of the decisions interpreting it will be practically abrogated."

#### Mistakes in bidding

THE PROBLEM: Due to a mistake in mputing a bid to erect a school g, a contractor was the lowest bilder by \$36,278. The bid was accomnanied by a bond to contract on acceptance of the bid. The day after the ward was made, the contractor notified the school board that it had made a mistake in adding accumulated estimates. The board refused to permit withdrawal of the bid, awarded the contract to the next lowest bidder. and med the contractor and its surety. Did the school district's right to judgment depend upon whether the mistake was due to negligence, and whether the board suspected that a mistake had been made when it accented the bid?

THE ANSWER: Yes. (Arlington Independent School District v. James J. Taylor & Sons, Inc., 322 S.W. 2d 548, decided by the Texas Court of Civil Appeals, Fort Worth.)

In ordering a new trial, the court aid that the evidence pro and con on the questions so presented was so conlicting that the trial judge should we submitted the case to a jury inad of summarily deciding the contractor was justified in refusing to stand by its bid.

The court decided that the follow wording of the bond entitled the district to collect damages based on the difference between the amount of the repudiated lowest bid and the next bw bid that was accepted, if the district was entitled to collect at all:

"The condition of the above obligam is such that if the aforesaid prinspal shall be awarded the contract n said proposal and shall, within the required number of days after the e of such award, enter into a tract and give bond for the faithful performance of the contract, then obligation shall be null and void: erwise, the principal and surety will pay unto the obligee the differin money between the amount of the bid of the said principal and the int for which the obligee may ally contract with another party to perform the said work if the latter nt be in excess of the former: ut in no event shall the surety's liay exceed the penal sum hereof."

#### Additional pay claimed by dredging contractor

THE PROBLEM: A contract required dredging of a barge channel, turning basin, and mooring dock and Alling behind the dock for a proposed industrial site sponsored by a nunicipal port district. Was the dredging contractor entitled to claim additional pay on the ground that the district failed to disclose to him the existence of concealed rocks and boulders, thereby leading him to suppose that the material to be dredged would consist only of sand, silt, and

THE ANSWER: Yes. (Walla Walla Port District v. Palmberg, 280 Fed. 2d 237, decided by the United States Court of Appeals, Ninth Circuit, and States District Court for the Eastern District of Washington.)

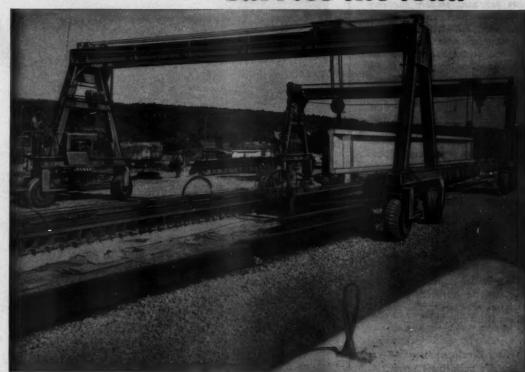
The Court of Appeals reasoned that the district was not relieved from liability because the contract specifled that the district disclaimed any warranty as to the type or kind of materials that might be encountered in grading and dredging. This disclaimer was nullified to the extent that the district failed to disclose information it had as to the existence of boulders, etc., in contradiction of a recital in the specifications that it was anticipated the material to be dredged would consist of sand, silt, and fine gravel. A customary clause in the bidding specifications that bidders must determine by their own test drilling the nature of underlying

of the district's consulting engineer's failure to disclose, on inquiry, his knowledge of the facts.

The court's opinion cites numerous supporting decisions by the U.S. Supreme Court and other courts.

The port district also challenged the contractor's right to collect extra pay on the ground that there was no sufficient proof as to the extra cost of performing the contract caused by the district's concealment. The court said that the testimony of the contractor, a graduate civil engineer experienced in river and harbor improvements, and an analysis of the log kept by his employee in charge of the barge, furnished a sufficient basis for an award made by a jury, in the absence of contradicting evidence.

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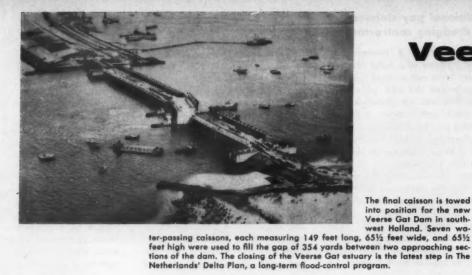
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## Veerse Gat Daron in Holland oo

The laying of the last caisson for a new concrete dam across the 1%mile-wide Veerse Gat estuary in southwestern Holland marked completion of the first phase of the Delta Plan, a long-term flood-control program whose chief purpose is to protect coastal and inland areas of The Netherlands from inundation by treacherous sea tides.

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#### ARBA 1961 directory

The American Road Builders' Association, Washington, D. C., has published the 1961 edition of "Highway Engineers and Officials."

The pocket-sized directory lists the names and addresses of more than 2,000 key administrative engineers and officials in the 50 state highway departments, the District of Columbia, and Puerto Rico; administrative personnel of the Bureau of Public Roads, including the heads of its regional and division offices: engineers and administrative personnel of tollroad authorities; and officers and directors of ARBA, its eight organized divisions, and its headquarters staff in Washington.

The directory, which has been published annually since 1945, is available at \$1 per copy from the American Road Builders' Association, World Center Bldg., Washington 6, D. C.

#### L-W appointment

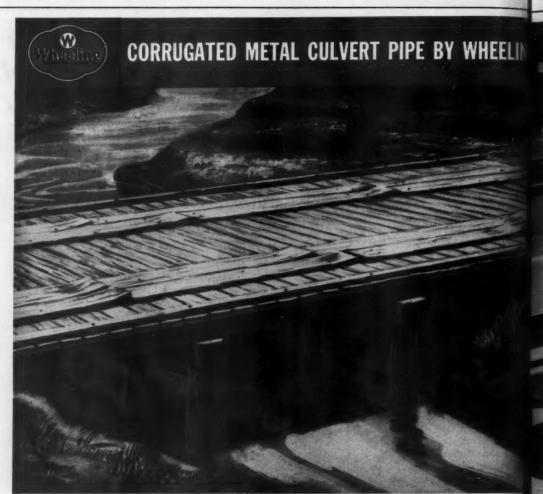
Joseph W. Sellers is the new product manager, motor graders, for the LeTourneau-Westinghouse Co., Peoria. Ill. He formerly served as special motor-grader representative for the entire eastern area.

#### **Perfect Circle elects**; acquires Schellens True

Perfect Circle Corp., Hagerstown, , Ind., manufacturer of piston rings, has re-elected all but one of its present officers to one-year terms.

The following officers were reelected: Donald H. Teetor, chairman of the board; W. B. Prosser, president; and vice presidents Herman Teetor, George Rea, G. R. Baer, A. M. Brenneke, Drex D. Minshall, and W. J. Platka, Jr. Rea was also reelected as secretary-treasurer. Vice president Daniel C. Teetor declined re-election but will remain a director of the company

Agreement has been made on the acquisition by Perfect Circle of Schellens True Corp., Ivoryton, Conn., manufacturer of turbine blades and turbine wheels for gas and steam turbines, compressors, blowers, pumps, and auxiliary equipment.



est Holland. Seven

n: Because outdated bridge is used regularly by heavy log trucks, bridge requires monthly inspection, frequent

**Best way to** "modernize" old bridges!

Why fight an endless battle to maintain old bridges? Especially when you can replace these "budget eaters" with low-cost Wheeling Corrugated Metal Culvert Pipe, Just look at the advan-

Resistance to shock and vibration -Unlike concrete pipe, Wheeling Corrugated Culvert Pipe is flexible. So it absorbs the severe shock caused by shifting fill and heavy trucks.

Amazing strength - This same flexi-bility makes Wheeling Culvert Pipe far stronger, because it enables the pipe to "borrow" strength from the surrounding earth (see for yourself

by conducting this simple test with your garden hose).

Won't disjoint -Wheeling Culvert

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New Orleans,

SEPTEMBER,

# mompletion marks latest step d'ood-control program

The project involved three years of careful technical planning and intricate labor. By the end of 1960, construction had reached a stage where a gap of 354 yards remained between the two approaching sections of the dam. For reasons of hydraulic engineering, it was necessary to close the gap with seven water-passing caissons. The gap was

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narrowed at each end with normal caissons measuring 203 feet long. 62 feet wide, and 59 feet high. These formed vertical abutments to which the water-passing caissons could easily be joined.

The water-passing caissons were built in a 51/2-acre dock that was excavated close to the point at which they were to be sunk. When the

caissons were ready, the dock was filled with water and a channel was dredged, linking it with the Veerse Gat, after which it was possible to tow the caissons by tugs. The caissons measure 149 feet long, 65½ feet wide, and 651/2 feet high. The two endfaces of each caisson incorporate seven concrete ribs that project out about 39 inches.

In order that the velocity of the current would not become too high. making operations difficult, the sides of the caissons were left open, the top and bottom surfaces of reinforced concrete being joined by a network of diagonal steel bars. In one side of every caisson, eight apertures were made, each 161/2 feet wide, and two steel gates 161/2 feet high were installed one above the other in each aperture

Altogether, 56 lower and 56 upper gates were installed; they were operated from a platform on the caisson by means of winches. In the raised position, these gates allowed the water to flow through the caisson. When all of the caissons were in position, the apertures were closed with the aid of the gates to stop the flow of water. To prevent the caissons from shifting, 10-foot-high concrete bins were mounted on top of them and filled with sand after the caissons had been placed in position.

Before the caissons were sunk in the gap between the two sections of the dam, the bed of the estuary at the gap was dredged to a depth of 46 feet below sea level, and a 10foot-high sill was built up with gravel and rubble. The top of the sill was 36 feet below sea level, and its width at the top, measured in the direction of flow, was 213 feet.

In order that the open-sided caissons could be towed out of the building dock, they were made floatable by closing the steel gates and covering the other side with wooden shuttering. Every day one caisson was towed to its destination and sunk by opening cocks at the bottom and in the end-faces of the caisson. The gates were then lifted and the wooden shuttering was removed so that the sea water could flow through.

Once the first caisson had been sunk, each successive caisson was cured by hinges to a corner of the one already lying on the sea bed, and was then maneuvered by the tugs into its final position with the ribs of the respective end-faces flush with each other. All spaces remaining between the caissons were subsequently filled up with rubble.

After the ballast bins on the caissons had been filled with sand and the winches removed, 4.6 million cubic yards of sand was pumped into the caissons.

To enable the gates to withstand strong currents, a massive dike is being built in front of and behind the caissons. This is being done with the aid of suction dredges that pump the sand direct to the site through a floating pipeline. Rubble is being deposited along the foot of the cais as a further safeguard against shift-THE END

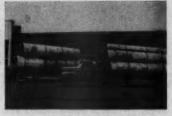


Solution: Wheeling Large Diameter Corrugated Metal Culvert Pipe easily handles peak stream flow . . . absorbs shock created by logging trucks.

Special finishes - For corrosive or abrasive situations, Wheeling supplies ial finishes, including full and partial bituminous coatings with or without paved inverts.

You always get fast delivery on Wheeling Culvert Pipe and Fittings because Wheeling maintains special culvert plants at Des Moines, Detroit, Kansas City, Louisville, Madison, Wis., Martins Ferry, Ohio, Minneapolis, Peoria, Ill., Philadelphia and St. Louis.

Get the whole story on Wheeling Corrugated Metal Culvert Pipe (both copper-bearing steel and copper-bear-ing pure iron) from your Wheeling this week. Or write directly to Wheeling Corrugating Company,





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drainage, use Wheeling Small Diameter Culvert Pipe.



For deep, fast-flowing streams, us Wheeling Large Diameter Culvert



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New Orleans, New York, Philadelphia, Richmond, St. Louis. Sales Offices: Atlanta, Houston.

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Wheeling, West Virginia.



# Tunnel, open-cut methods make for safety on sewer job

Excavating a trench for a new sewer along Lake Shore Boulevard in Willowick, Ohio, is a backhoe with 2-cubic-yard bucket. At left, a Bucyrus-Erie crane waits to rough-grade the trench bottom for the 84-inch-diameter Armco Smooth-Flo corrugated pipe.

THE WORLD'S TOUGHEST OFF-ROAD TIRE TOUGH STEEL FOR ROUGH JOBS



U. S. ROYAL SUPER CON-TRAK-TOR S.R.T.\* Deeper tread at center and shoulders—steel reinforced for "chain-mail" resistance to cuts and impact failures • Each brass-coated steel filament is rubber insulated—can't rust out • Double-strength nylon cord body • More durable carcass • More tires retreadable • Prove-test them on your present equipment, specify them for your new equipment. Call your U. S. ROYAL DEALER.

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Open-cut, tunnel, and jacking meth ods. These were the alternates contractors had in bidding on a sanitary and storm-sewer enlargement jet that involved a 136-foot-long tunnel running under the 6-lane Lake Shore Boulevard in Willowick, Ohio. Because the tunnel length and the size of pine involved would have made jacking hazardous, most of the firm chose the tunneling and open-cui alternates. But the \$434,000 contract calling for installation of more than 5,400 linear feet of pipe, was let with the tunneling option because the added cost-\$15,000-was considered worth the increased safety.

National Construction Co., Clereland, low bidder on both the tunneling and open-cut options, began operations by installing a 136-foot-long tunnel under the 6-lane highway without disrupting traffic.

As driving was done, Armco steetunnel liner plates were bolted into rings to form the 90-inch-diameter tunnel. After installation of the tunnel lining, the void between the liner plates and soil was filled with pressure-applied cement grout.

Once the 84-inch-diameter Armoneter Smooth-Flo corrugated pipe sections were threaded into and through the tunnel, pressure grout was applied to seal voids between the corrugated-metal pipe making up the sewer line and the steel liner plates.

The city engineer felt that, for economy's sake, the depth of tunnel under Lake Shore Boulevard should not exceed 29 feet. To accomplish this, the first 608 linear feet of 84 inch Smooth-Flo, beginning at the outfall end, was laid on a grade of 0.50 per cent. This stretch was tied into the tunnel pipe under Lake Shore Boulevard by means of a manhole.

The next 2,859-linear-foot portion of the sewer, consisting of 90-inch-diameter Smooth-Flo pipe, was laid on a grade of 0.24 per cent. With this flat grade, it was possible to hold the trench depth fairly constant, and with the difference in grade matching different pipe diameters, capacity was held practically constant.

A Northwest backhoe with a 2 cubic-yard bucket was used for trend excavation, while a Bucyrus-Ers 15-B, equipped with a clamses bucket, rough-graded the trend bottom.

Great care was observed during backfilling operations. For proper is

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manager of sion, Warner stallation of this storm sewer, the contractor bedded the corrugatedmetal pipe on a minimum 8 inches of approved granular material. The granular backfill on either side of the pipe up to the midpoint was placed in layers not exceeding 6 inches. During backfilling, a Michigan 85-A front-end loader hauled and placed material in the trench. Compaction of the granular base and of the select backfill material covering the pipe was handled by pneumatic tampers powered by a Gardner-Denver compressor.

From the spring line of the pipe to a height of 18 inches over the pipe, select backfill was placed in layers not exceeding 8 inches. This material came from the top 6 to 8 feet of cut for the trench. It was friable and contained sufficient moisture to give very adequate compaction. Above the 18-inch blanket, no backfill compaction was necessary to the top of the trench. THE END

#### Allis-Chalmers names

Several new appointments have heen made by the Industries Group. Allis-Chalmers Mfg. Co., Milwaukee,

James H. Jones has been named manager of the El Paso, Texas, district. He succeeds Malcolm S. Jones, who becomes manager of Western accounts for A-C's new cement-industry department.

Raymond H. Black is the new manager of the Allentown, Pa., district. He replaces Charles E. Dandois. named manager of Lehigh Valley accounts for the cement-industry department.

New manager of the Chattanooga district is Henry M. Brundage. He succeeds J. Warren Roberts, who has been transferred to the Atlanta office as Southeast region representative for electrical transmission and distribution equipment.

Thomas L. Dineen has been appointed manager of the Cleveland district, succeeding Joseph Bronaugh. who is now manager, utility sales, Baltimore district.

Andrew Wassell and W. W. Chalmers have been named manager, utility sales, and manager, industrial sales, respectively, in the Charlotte district.

Douglas W. Erskine has been named manager of engine engineering at the company's Harvey, Ill., Works. He was formerly executive assistant chief engineer at the Springfield Works.

#### New manufacturing head named by Alpha Cement

Joseph O. Sherod is the new director of manufacturing for Alpha Portland Cement Co., Easton, Pa. He will be in charge of the operation of all of the company's eight plants.

Sherod formerly served as general manager of production, Lime Division, Warner Co., Philadelphia.

## AN IMPORTANT NEW BLASTING TECHNIQUE

PIONEERED

BY HERCULES

PRESPLITTING is a forward step in the advancement of a more efficient blasting

technique. This new method of controlled blasting, pioneered by Hercules Powder Company, produces "line-drilled" results without the excessively high costs of actual line drilling.

PRESPLITTING has the following advantages over normal methods of blasting:

1. Rock overbreak behind the PRESPLIT blast holes reduced to an absolute minimum-less extra unpaidfor excavation and less concrete required because excess overbreak is eliminated.

2. Fewer blast holes required than for line drillingextra dollar savings in drilling costs.

PRESPLITTING.

- 3. Reduction in ground vibrations from primary blasting-fewer complaints from nearby householders and industries.
- 4. Sheer, clean rock wall obtained—greatly reduced scaling time.
- 5. Back shattering reduced-much safer wall to work under; walls require less maintenance.
- 6. Entire cut may be PRESPLIT with one blast-saves resetting up time.

Detailed technical information about PRESPLITTING is available in bulletin form. Ask your Hercules representative for a copy and learn how PRESPLITTING will reduce costs on your job.

**Explosives Department** 

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For more facts use Request Card and circle No. 305

#### Welding workshop courses for key personnel

XE-61-9

■ The Hobart Brothers Technical School, Troy, Ohio, will conduct again this fall four short workshop courses designed to upgrade the ability of key personnel to direct, control, and evaluate fusion welding operations.

The courses, each held for a 5-day period, are: Arc Welding Inspection and Quality Control, October 9-13; Welding Fundamentals for Supervisors and Engineers, November 13-17; Automatic Welding for Management. November 27-December 1: and Gas Shielded Arc Welding Processes, De-

The fee per person for each course is \$50. Registration Bulletin DM-194 includes a full description and schedule of classes. Reservations may be made by wire, letter, or telephone to the school director.

#### **Mobile information units** aid highway-travel study

The Michigan State Highway Department, Lansing, Mich., is conducting a research project to determine the value of seasonal Travel Information Centers. Two mobile information centers will be operated at various sites as part of the 3-month study.

The project is being conducted in cooperation with the state legislature's new Tourist Industry Relations Committee and the Michigan Tourist Council.

#### **Engineering firm moves**; opens new branch

■ Henningson, Durham & Richardson, engineering and architectural firm of Omaha. Nebr., has moved to new headquarters in a company-designed building at 3555 Farnam St., Omaha.

The company also recently opened an office in Charlotte, N. C., and has named Robert Southworth its manager. In addition, Henningson, Durham & Richardson has purchased all the stock and taken over the practice of Vannort Engineers, Inc., of Charlotte.

Harold Grasse has been named head of HD&R's mechanical engineering department.

Here the operator of the Michigan 175A tractor shovel does a "trick" for the big gathering. He bal-ances the rig on its front bucket and rear wheels, while jackknifing the front wheels off the ground.



An Eimco crawler with front-end loader maneuvers at the U. S. exhibit at the Poznan Fair. The Model 123 can interchange a dozer blade for its bucket.



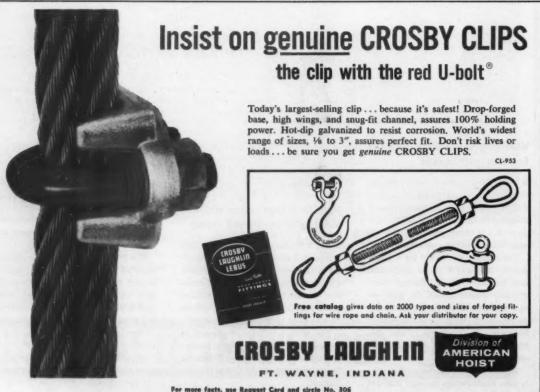
American equipment draws crowds at

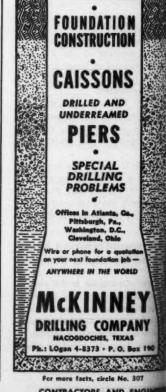
# POZNAN FAIR

30th international show in Poland offers U. S. construction machinery in action



An Ingersoll-Rand track drill, powered by a big I-R air compressor, shows an intent gathering how it drills a blast hole.





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At a Polish ex

If crowd int the 30th Inte the working d Other nations nual Polish ex land itself of machinery us U. S. S. R. dis larly in its i static and lac live moving s

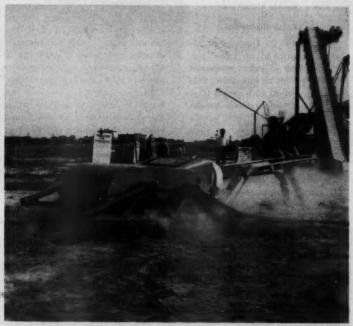
U. S. mach had the oppo most as if it v tion project. carried on in

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And, ren



At a Polish exhibit in a Poznan suburb, a vibratory hammer sinks a concrete pile to around level. Its power comes from electric generator sets in the rear.



Throwing up a dust cloud is the Polish BCM2 compactor, here being handled by a single operator. It compacts the soil in a single pass to a depth of  $2\frac{1}{2}$  meters (8 feet).

If crowd interest is any criterion, then the hit of the 30th International Fair in Poznan, Poland, was the working display of U. S. construction machinery. Other nations, among the 56 represented at the annual Polish exhibition, had equipment to show. Poland itself offered a comprehensive collection of machinery used in the construction industry. The U. S. S. R. displayed a variety of machines, particularly in its tractor line. But both exhibits were static and lacked the dramatic possibilities of a real live moving show.

U. S. machines, while few in number and make, had the opportunity to demonstrate its ability almost as if it were actually operating on a construction project. This simulated "work" activity was carried on in a dirt arena that provided space, even though limited, for the big machines to maneuver. This they did, almost on an hourly basis, for the two weeks of the Fair, June 11 to 24.

When the engines on the machines started, it served as a signal for the Fair-goers to leave whatever they were doing and make for the U. S. exhibit. They ringed the dirt pit, five or six feet deep, to watch each unit go through its routine just as it would out on a project.

#### Tractors perform

An Eimco 123 crawler tractor with a front-end loader and a Michigan 175A rubber-tire tractor shovel maneuvered over the arena, back and forth and in circles. All the time, they were raising and lowering their buckets to illustrate the ease of

handling. For an acrobatic fillip, the operator of the Michigan rig supported the big machine on its rear tires and 2%-yard bucket, jackknifing it so that the front wheels came high off the ground.

The Eimco 123, part of the firm's 103 series, has not yet been announced to the home market. It features fast interchanging between the front-end loader bucket and a dozer blade. (See cover photo). The diesel horsepower range is 107 to 130.

Following the tractor solo acts, Thor and Ingersoll-Rand track drills gave a demonstration of their functions. An I-R compressor furnished the air for the performance.

In the adjoining U.S. exhibition hall, the other American manufacturers were displaying their products under the general theme—"Safety of workers

# DRAINAGE STRUCTURE

Three days after this load of SYRO STRUCTURAL PLATE arrived at its destination, the structure was assembled, backfilled, and ready for traffic. There's no time lost waiting for curing, no costly ferming, with corrugated metal structures.

For economy, strength, durability . . . specify SYRO STRUCTURAL PLATE.

And, remember SYRO for STEEL BEAM GUARD RAIL!



This Syro structure was assembled in just two days. It is now ready to replace the narrow, unsafe bridge in the background.



For more facts, use Request Card and circle No. 308

and quality of production." Keen interest was evident at all the commercial booths, and the U.S. book store was also a popular attraction.

#### Polish display

Not related to the Poznan Fair, although presented at the same time. was an exhibit of Polish equipment employed in building enterprises. This display was set up on a vacant tract of land in a Poznan suburb for the benefit of Polish engineers, technicians, and others who were visiting the International Fair. Here the various units were demonstrated under simulated working conditions.

One of the rigs unfamiliar to the U. S. construction scene was the vibrating hammer. Electrically operated, the model demonstrated sank steel or concrete piles, cylindrical or structurally shaped, to a depth of 45 meters (148 feet). It handled up to a 6-inch-diameter pile, the inside diameter of the pipe head fitting over the pile being 160 mm (61/3 inches). The hammer weighs 1,050 kilograms (2,315 pounds) and produces from 455 to 910 vibrations per minute. It operates off two 4.5-kw electric generator sets.

Another unusual rig was the BCM2 compactor, operating on 30 kw, which moved itself on trusslike side frames much in the manner of a walking dragline. It is handled by a 2-man crew. Weighing 3,800 kilograms (8,-378 pounds), the rig was designed to compact 200 square meters (239 square yards) per hour to a depth of

21/2 meters (8 feet). Working on the vibratory principle, the compactor can advance in straight-line work at the rate of 7 to 15 meters (23 to 49 feet) per minute. THE END

#### Universal Atlas news

Robert G. Watson has been named sales manager of the Albany, N. Y., District. Universal Atlas Cement Division of U. S. Steel Corp., New York, N. Y. He was previously technical service manager in the New York City

The division recently announced the exercise of an option to purchase approximately 51/2 acres of land for a cement-distributing station at Sewell's Point, Norfolk, Va.

Universal Atlas has also agreed to

purchase the cement storage and ha dling facilities of Ponce Produc Inc., at Port Everglades, Fla. Unive sal Atlas will purchase cement from Ponce Cement Corp. in Puerto Ri and will transport it to Port Eve glades on a self-unloading bulk-o ment carrier, the S. S. Florida State now owned and operated by Pon Products.

#### Crosby-Laughlin news

The Crosby-Laughlin Division American Hoist, Fort Wayne, Int. has named John W. West genera sales manager. West, formerly sistant sales manager for the division replaces Percy Gough, who has be promoted to director of marketing for the parent company.



Rugged, dependable, fully transistorized 27-megacycle portable 2-way radio, designed specifically for business and industrial uses. Small and light, weighs less than one pound. Has 11-volt mercury battery for 50 hours' operation. Factory-installed plug-in module available to increase transmit power.



Short-range communications facilities for business service and personal needs. Ideally suited for use on materials handling vehicles, or for 2-way conversation be-tween fixed points. Also serves as excellent base station for hand-held radio. 6 or 12 V DC or 115 V AC operation.



A complete line of quality Intercoms— wired, or wireless—designed for office, factory or home use, at lowest prices suitable for many applications, from sim-ple wireless 2-way talk-listen systems to faxible, multi-unit systems with a variety of talk-listen-monitor options.

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For more facts, use coupon or circle No. 309



RAISING the final section of steel truss to complete the assembly of the last of fifteen 200foot-long trusses for a 3story 1,000-car parking facility atop the Port Authority Bus Terminal in New York City is a huge derrick mounted on the existing roof. Thirty 70foot-long steel columns, placed at 50-foot inter-

vals against terminal walls on 40th and 41st Streets, support the trusses. Steel erection work was handled by the Harris Structural Steel Co., New York, N. Y., a subcontractor of Starrett Bros. & Eken, Inc., also of New York City, general contractor for the busterminal expansion.





\* TANDEM CON-NECTED UNITS UNITS



Two type of decks offered—Checkered S Plate Runway or Timber decks. Easily trs



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Dept. 104 Web

Three c for '63

The bos struction 1 sociation appointme tion Equip Show in housing, r space allo added.

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Reports of various section how to reduce creasing ul loads from 1 for timber pil

Also includ the selection preservatives tion design ar formation on diesel hamme Priced at \$

ay be obtain Wood Preserv located at 11 Chicago 2, Il

SEPTEMBER, 19

# Three committees added for '63 CIMA Road Show

■ The board of directors of the Construction Industry Manufacturers Association has completed committee appointments for the 1963 Construction Equipment Exposition and Road Show in Chicago. Committees on housing, rules and qualifications, and space allocation have recently been added.

Members of the housing committee include: chairman J. E. Mitchell, division manager, manufacturer sales, The Firestone Tire & Rubber Co.; R. G. Greer, International Harvester Co.; William D. Lease, Athey Products Corp.; D. A. Milligan, J. I. Case Co.; and Gordon K. Ray, Portland Cement Association (representing Materials and Services Division, ARBA).

Those on the rules and qualifications committee include: chairman
Buel M. Wallis, vice president—director of marketing, Schield Bantam
Co.; vice chairman E. J. Mercer, AllisChalmers Mfg. Co.; Brooks M. Dyer,
Pittsburgh Plate Glass Co. (representing Materials and Services Division of ARBA); E. H. Holt, BarberGreene Co.; and Robert E. Hunter,
Detroit Diesel Engine Division, GMC.

Members of the space-allocation committee are: chairman A. J. Lichtinger, executive vice president, The Wellman Engineering Co.; vice chairman George C. Williams, Northwest Engineering Co.; S. J. Duncan, International Salt Co. (representing Materials and Services Division of ARBA); George B. Flanigan, Chain Belt Co.; Kenneth P. Kerr, Butler Bin Co.; and E. C. Chapman, Caterpillar Tractor Co.

#### New book on timber piles

■ The American Wood Preservers Institute, Chicago, Ill., has published a 62-page illustrated book entitled "Pressure Treated Timber Foundation Piles for Permanent Structures."

The book was especially prepared to help engineers in the design and construction of actual projects. It discusses the classification and function of end-bearing and friction types of timber piles, load-limit factors, and the importance of preliminary soil exploration. It includes a review of the risks of foundation fallures involved in using untreated timber piles, as well as service records and field inspection reports demonstrating the value of pressure preservative treatment.

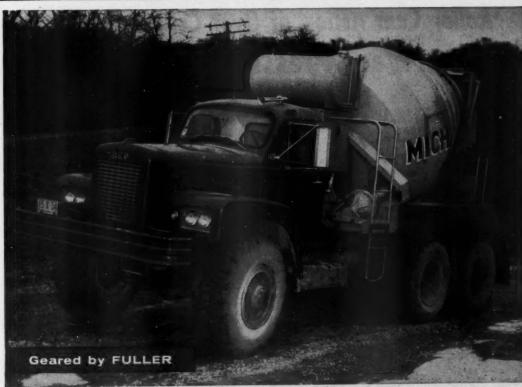
Reports of five loading tests in various sections of the country show how to reduce foundation costs by increasing ultraconservative design loads from 15 to 35, 40, and 50 tons for timber piles.

Also included are specifications for the selection of timber; standards for preservatives and treatment; foundation design and driving data; and information on typical air, steam, and diesel hammers.

Priced at \$1.50 per copy, the book may be obtained from the American Wood Preservers Institute, which is located at 111 W. Washington St., Chicago 2, Ill.



A GAS-TURBINE ENGINE is paired with hydrostatic transmission in International Harvester's newest research tractor, the HT-340. The rig, whose skin is moided fiberglass, has no gear-shift lever, throttle, brake or clutch pedals. It uses neither cooling water nor antifreeze, and it has no transmission gears. The rig's oil consumption is very low, and it is said to operate on almost any kind of liquid fuel. The gas turbine, an 80-hp single-shaft Titan T62T, is a product of the Solar Aircraft Co., San Diego subsidiary of I-M.



One of Michael's Fuller-equipped Reo F-505 6 x 6 OH Transit Trucks. The power is transmitted through a Fuller R-35 7-speed ROADRANGER to a 2.55:1/1.00;1 transfer case and 7.59;1 front and 7.54:1 rear axies.

## R-35 ROADRANGERS from Pit to Patio

"We have more than doubled our business in the last three years," Vern Michael, owner of Michael Concrete Products, Inc., Loveland, Ohio, says. "Since we bought our first big Fuller-equipped Reo in 1957, our trucks always come through on deliveries. That Fuller R-35 ROADRANGER Transmission should be given a major portion of the credit for this performance. It has the get-up-and-go we need to get thru the rough construction sites where we operate."

#### Fuller R-35 RoadRanger features:

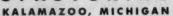
- No gear splitting −7 selective and progressive gear ratios
- Easier, quicker shifts—closely spaced and equal ratios in the operating range
- One shift lever controls all 7 forward and 1 reverse speeds
- Engines work in peak hp range with greater fuel economy
- Compact transmission—only 375 lbs.,
   26-25/32 inches in length

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For more facts use Request Card and circle No. 310

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Rollers are suited to compaction requirements for grading work at the Memphis airport. This LeTourneau-Westinghouse Model 120 sheepsfoot pulled by a Euclid C6 tractor compacts gravel on the site of the terminal building. It makes 2 to 4 passes for initial compaction.

Grading contractor at Memphis airport has

# Four types of rollers meet tight spex

# Roller Cam Action of Over-Center Clutches Reduces Wear, Pressure and Adjustments

Rockford exclusive anti-friction roller cams increase clutch life, lower pressure needed to engage and release, and reduce clutch adjustments. Precision-ground, hardened steel rollers force pressure plate against facing and flywheel for smooth, powerful engagements. Actuation progresses from "release" to "on-center" to the slightly "over-center" locked position. Operated by hand lever, Rockford Over-Center Clutches remain in or out of engagement until changed by the operator. Clutches fit flat or counterbored flywheels. Oil or dry operation. Torque loads from 365 to 3,000 lb. ft. Write today for illustrated brochure.



Allis-Chalmers Crawler equipped with Rockford Over-Center Clutch

Patented anti-friction roller cams reduce wear, adjustments, and lever pressure. Slight pressure to rollers forces pressure plate and facing against flywheel, instantaneously locking and engaging clutch.

Positive-lock adjusting ring allows fine adjustments for longer life and smoother starts. Simply release lock and turn to exact engaging position. Positive-lock prevents "creeping". Adjustments are long-lasting. High-test facings give extra-long clutch life, reduce scoring, and greatly cut costs of downtime, replacement and labor. Strong, lightweight construction permits easy Segmental slots prevent "dishing"... even under extreme heat conditions. Rotary surface grinding assures perfect, uniform flatness. Core plate is made of special highcarbon spring steel.



Release bearing assembly consists of bronze or ball bearings. Clutch is actuated from hand lever to yoke contact on trunnions. Pivot pins give direct, amooth actuation between release sleeve and cam arms.

Spring steel plate, bearing against roller cams, yields slightly upon actuation. This assures extremely smooth engagements, relieves cover plate of strains, maintains uniform pressure, and gives longer life.

High tensile strength cover plate assures safe operation. Compact, low-inertia design prevents gear clashing and delayed shifting. Dynamic and static balancing of each clutch eliminates vibration. Close-tolerance splined hub assures perfect disc alignment. Throughhardened hub gives long life. Bolt circle and pilot dia. accurately locate cover plates. Precision manufacturing eliminates misalignment.

See us at the

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S.a.E. Show

Sept.11-14

## ROCKFORD CLUTCH

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OF BORG-WARNER

Export Sales Borg-Warner International \* 36 So. Wabash, Chicago, III.

For more facts use Request Card and circle No. 311

Strict density specifications demand a variety of compaction equipment on the runway grading at Memphis Municipal Airport.

To get the required modified Proctor density, H. N. Rodgers & Sons Co. Memphis, keeps four different types of rollers at work on the project—sheepsfoot, special tamping, wobblewheel, and 50-ton pneumatic. Each roller has a specific task in the compaction effort.

Methods vary with the nature of the material, but basically the sheepsfoot is the deep-down roller for the 8-inch lifts. It makes the first passe and compacts the lower part of the lift. The type of equipment for the second rolling depends on the type and moisture content of the material For most conditions, the Hyster tamping roller is effective as a fastmoving sealing roller. For relatively dry gravel, the 50-ton big-wheel pneumatic roller makes a good seal For gravel with a higher moisture content, the lighter wobble-wheel makes the best second roller.

Compaction required for most fills is 90 per cent modified Proctor density, with the top 9 inches compacted to 95 per cent. Cut areas will have the top 6 inches scarified and recompacted to 95 per cent.

All fill, for the full depth of embankment under the terminal building and concourses, was compacted to 95 per cent modified Proctor density.

#### Big expansion program

Rodger's contract is part of a \$20 million modernization program at the Memphis Municipal Airport. In addition to the construction of the runway, work is currently under way on a modernistic terminal building and concourse. A tunnel to carry automobile traffic under the new runway is now being built. (See page 32). Aiready completed is a 116-foot-high control tower.

Rodgers started work on its \$13 million contract for site preparation and runway grading in July, 1988. Change orders have added about \$51,308.50 to the price of the original contract. The contractor expected in finish moving the 2.3 million yards of material by this month.

Under an agreement with the cits of Memphis, Allen & Hoshall, Memphis, has been retained as the primare designer and engineer for the pro-

CONTRACTORS AND ENGINEE

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ect. The firm designed the 8,400 × 150-foot paved runway for eventual lengthening to 9,300 feet. A second parallel runway is included in future plans. The runway under construction will be paved with 11 inches of unreinforced concrete in critical areas and 9 inches of unreinforced concrete in the noncritical areas.

#### Four types of rollers

In the grading operation, Rodgers has two types of material to compact -a fine wind-blown material and a natural gravel encountered in certain areas in the cut. The gravel is used without crushing to build the fill under the terminal building and other structures. The fine dirt is used to build the grade of the runway. Material of too high a plastic index must be wasted.

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In compacting the 8-inch lifts of either gravel or dirt, a LeTourneau-Westinghouse Model 120 sheepsfoot roller, pulled by a Euclid C6 tractor, makes the first 2 to 4 passes. Generally in dirt, and sometimes in gravel, a Hyster 30-ton tamping roller, pulled by an MRS 190 tractor, makes the final two passes to bring the material up to 95 per cent or above.

For making the final passes in gravel, rubber-tire rollers are generally used. The heavy 50-ton Ferguson is particularly good in dry gravel. In wet gravel, the big wheels tend to give an undesirable pumping action. The 5-ton wobble-wheel makes a good roller for wet gravel or for topping out the work of the 50-ton roller.

#### Graders spread material

The material is placed by scrapers and spread with Cat No. 12 motor graders. Superintendent Leon Chancellor believes that motor graders, rather than dozers, make better pieces of equipment on the fill, for they can place material more accurately and are less expensive to operate. The heavy work of the graders is eased by the scraper operators, who place their loads in even strips.

After one lift is compacted, the top 3 inches is scarified to knit with the next lift. This operation is accomplished by a 7-tooth cable-controlled scarifier mounted on a Cat D8.

(Continued on next page)



orter hauls are made with doublebarreled TS-24's. Two of these were on the job; five other scrapers were concentrated on the longer hauls, which went to 4,000 feet.



This Hyster 30-ton tamping roller is used effectively as a sealing roller, generally working ground that had previously been compacted by a sheepsfoot. A 50-ton pneumatic rig was used an relatively dry gravel, a wobble-wheel for gravel with more moisture.



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Equipment as far as the eye can see . manpower . . . horsepower . . . and everywhere the constant threat of abrasive grit, dust and dirt . . . that's where WIX Engineered Filtration

The Niagara Power Project is BIG
... so big that four of America's top
engineering and construction firms
pool their talents in one operation,
Channel Constructors, to complete the

Channel Constructors, to complete the undertaking.

High on the list of top priority activities is Preventive Maintenance.

Here is rugged work that challenges even the most rugged equipment and

there's no room for lay-ups and downtime. And, for the thousands of units of all shapes and sizes there must be constant, uninterrupted care, especially in the critical areas of clean lubrication and clean fuel.

WIX is at work on the Niagara Power Project with Filters that do a superlative job and a WIX Filter Survey that pinpoints the Filter needs of every unit. The WIX factory representative is there, too, maintaining a continuing check on the Survey as new equipment is added and aiding in the maintenance of a balanced inventory at all times. at all times.



Earth moving and construction jobs, large and small, find WIX Engineered Filtration important in their P.M. programs. Write for the money saving story of Wix-Pax service to fleets, teday!

WIX CORPORATION . GASTONIA, N. C.

In Canada: Wix Corporation Ltd., Toronto In New Zealand: Wix Corporation New Zealand Ltd., Auckland

For more facts use Request Card and circle No. 312



A 7-tooth scarifier on a Cat D8 cuts through the top 3 inches of a com-pleted lift so that a knitting action can be secured with the next lift of material to be placed.

> Graders are used on the fill by the contractor, who claims they are more economical than dozers. This Cat No. 12 grader is leveling off material dropped by scrapers.



(Continued from preceding page)

Moisture content in the fill is controlled to give suitable compaction. When the moisture gets above 15 per cent, the fill is disked to dry out the dirt. Since the material from the cut is generally moist, there is seldom need to add water to the fill.

#### Density frequently checked

Working under Allen & Hoshall, the testing engineers of Barrow-Agee Laboratories keep a close check on the quality of the compaction. The two field crews make a density test on each lift for every 10,000 square feet. Normally the densities run well above the required 95 per cent, but when an occasional lift does not meet specifications, it is ripped out and recompacted.

Scrapers handle the bulk of the dirt. At the time the project was visited by Contractors and Engineers, there were two Euclid double-barreled TS-24's and five Caterpillar DW20's at work. The DW20's took the long hauls, while the TS-24's operated more economically on the short hauls. The average haul was 2,000 feet; the longest hauls ran about 4,000. To level the runway area, the scrapers had to cut down as deep as 20 feet and fill in as high as 25 feet.

The scrapers were loaded by either a D9 or a "souped-up" D8 pushing individually. The moist material was relatively easy to load and unload.

At one end of the runway about 150,000 yards of unsuitable material had to be removed. For this excavation, the contractor brought in two 3-yard draglines. The big machines loaded into Cat and Euclid bottomdumps that hauled the material about 1,200 feet to a low area on the existing airfield that needed to be at a higher grade.

#### Personnel

Leon Chancellor is superintendent for H. N. Rodgers & Sons Co. For Allen & Hoshall, Matt Bonner is project engineer and Nat Dunn is field representative. THE END

#### **Hy-Dynamic names**

■ New sales manager for the Hy-Dynamic Co., Lake Bluff, Ill., is Don Mitchell. The firm manufactures the Dynahoe, an integrated loader-tractor-backhoe.

# BOLT TENSI

AN IMPORTANT



#### MAKE A DATE-WE'LL DEMONSTRATE

You have to see this amazing new wrench in action to completely appreciate its capabilities and possibilities. It took test after test after test to convince Gardner-Denver engineers themselves that they'd found a completely reliable way to assure accurate tensioning. We think you'll be convinced, too, once you see a demonstration. Ask your Gardner-Denver representative for an appointment.

#### **FIVE IMPORTANT ADVANTAGES**

- 1. Uniformity of bolt tension every time, regardless of variables in fasteners or air pressure.
- Reduced costs, by using fasteners to their designed capacities.
- 3. Stronger bolted assemblies because fasteners can now be tightened to stand load variables.
- 4. Built-in standard control with no attachments. All standard parts, nothing extra to buy.
- Control override for reversing fasteners, or for using full wrench power if desired.

Gardn

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This giant-sized electric gantry crane built by Holland Cranes of The Hague, The Netherlands, is handling a job lifting, ransporting, and placing segments of a prestressed-concrete beam that will cover the sluice system in a new dam closing the Haringvilet River to the North Sea. The crane has a lifting capacity of 250 tons and a span of 246 feet. The bridge of the rig rests on two trestles that can travel on rails for nearly a mile.



#### REPORT FROM GARDNER-DENVER

Problems with Torque Control—When tightening bolts by the torque control method, there is no reliable way to tell if they have been tensioned. Torque readings are subject to many forms of interference. To mention a few: irregular threads, burrs, rust and scale, bent washers. Torque readings will vary if threads are lubricated or dry, if washers are soft or hardened.

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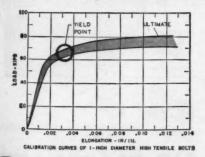
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All these variables offer resistance in the form of friction. Consequently, as a nut is being tightened, the resistance increases until friction becomes great enough to signal the operator or torque control mechanism to stop. Perhaps the bolt has reached its desired clamping force. Perhaps not. The very first obstruction can cause a sharp increase in torque resistance, and the result may be a large variation in true bolt tightness.

New Approach to Bolt Tensioning—However, if you follow the Research Council specifications for tensioning, you're absolutely sure the bolt is tight every time. A new approach to a practical method of obtaining bolt tension was made by Gardner-Denver's research and development engineers. When the new highstrength bolts are tightened to their yield point, the force required is great enough to overcome all frictional interference, and to obviate the effect of frictional variables on final joint tightness.

Gardner-Denver engineers determined that



if input energy to the wrench could be controlled, the output energy could stress bolts to their yield point (see chart) without approaching ultimate bolt strength. Many impact blows were found to be the answer. These blows, however, must always have the same output force if the bolt is to reach its desired clamping force. Further testing demonstrated that when predetermined bolt tension is reached, the nut will stop turning, even though the wrench continues to impact.

Consistent, Reliable Results—In test after test, Gardner-Denver engineers were amazed at the consistent results achieved with their new Tension Control Wrench. They tightened the same fastener over and over again; the results were the same. They tried other bolts of the same size and achieved consistent tension results. They reset the wrench for bolts of other sizes and materials, and again achieved consistent bolt tensioning every time. This reliability is possible because the wrench can be adjusted to obtain a predetermined tension in any bolt. This clamping force is so great that the variables mentioned above yield until the specified bolt tension is obtained.

Application in the Field—Bolt manufacturers specify minimum proof load and minimum yield. In the field, yield point can be determined by use of a conventional torque wrench or by hand wrenching. It will be indicated by the "steady torque"-the point at which continuous torque (no increase) will continue turning the nut. You find this yield point on a sample bolt—then, using a simple screw adjustment, set the Tension Control Wrench to obtain the same bolt tension. Once set, the wrench will tighten one or thousands of these particular bolts with consistent, accurate results. The Gardner-Denver wrench can quickly be readjusted to handle bolts of other sizes or other materials.

EQUIPMENT TODAY FOR THE CHALLENGE OF TOMORROW

# GARDNER - DENVER

Gardner-Denver Company, Quincy, Ill.—Offices in principal U.S., Canadian and Mexican cities in Canada: Gardner-Denver Company (Canada), Ltd., 14 Curity Ave., Toronto 16, Ontario

International: Gardner-Denver International Division, 233 Broadway, New York 7, N.Y.
Offices Buseos Alres, Argentias; Artarmon, N.S. W. Australia: Brussels, Belgiam; Ric de Jacefor, Brazil: Santiago, Calles Barranguilla, Colombia; Lima, Peru; Holsia, N. Rodecals; Saliabury, S. Rheeslas; Johannesborg, Trantosal

For more facts use Request Card and circle No. 313

#### Giant electric crane built by Holland firm

■ A huge electric gantry crane with a lifting capacity of 250 tons and a span of 246 feet has been designed and built by Holland Cranes of The Hague, The Netherlands. The crane was constructed to handle a 2-year job of lifting, transporting, and putting into place 1,100 segments of a prestressed-concrete beam that will cover the sluice system in a new dam which, under the country's Delta Plan, will close the Haringvliet River in southwestern Holland to the North Sea and protect the land from tidal floods. Each beam segment weighs 240 tons and must be moved over a distance of 656 feet.

The gantry crane is equipped with two crabs, each of which has a lifting capacity of 125 tons. One of these crabs also serves as an auxiliary hoist for light loads of up to 12 tons.

The bridge of the crane rests on two trestles that can travel on rails a distance of nearly a mile. Ward Leonard controls are utilized for lifting, traversing and transporting. Such safety devices as an automatic brake system and two independent correction mechanisms to adjust the traveling speed of both trestles in relation to each other are also incorporated.

#### North Carolina map for 1961 released

■ The official North Carolina state highway map for 1961 has been released by the North Carolina State Highway Commission.

The map, whose cover features the Ocracoke lighthouse in America's first National Seashore Park, is printed in full color and shows the routes of more than 13,000 miles of primary, interstate, and major secondary roads throughout the state. It includes such valuable information for the tourist as an index of cities, towns, and points of interest, and contains 18 full-color pictures carrying out the theme of "Variety Vacationland."

Copies of the map may be obtained free of charge from the State Highway Commission, Raleigh, N. C.

## New PCA film released on soil-cement mixtures

A new sound and color 16-mm motion picture, "Standard Laboratory Control of Soil-Cement Mixtures," produced by the Portland Cement Association, Chicago, Ill., was first shown at the recent annual meeting of the American Society for Testing Materials in Atlantic City,

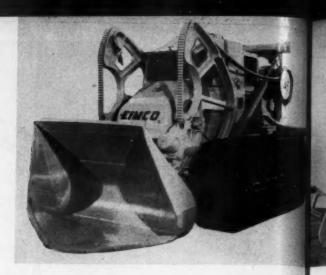
The film, which was shown during the session on soils, describes current ASTM-AASHO laboratory test methods that determine the quantities of cement and field control factors necessary for building soil-cement pavements, and includes the newest short-cut test methods for sandy soils.

The movie may be obtained free on loan in the United States and Canada from PCA, 33 W. Grand Ave., Chicago 10, Ill.

# **PRODUCT** PARADE



For further infomation on any of the products described in the following section, circle the designated number on the Request Card.



#### New crawler tractor is electric-powered

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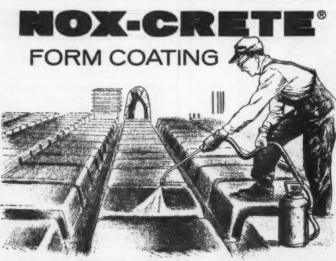
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Designat

An electric-powered excavator, the Model 105E, has been added to the 100 series of Eimco crawler tractors.

This unit is powered by a 100-hp 50 or 60-cycle ac electric motor of from 220 through 550 volts. Standard bucket capacity is 1 cubic yard, and the machine weighs 38,500 pounds. Speeds range up to 4.2 mph in either forward or reverse. Discharge heights from 9 feet 6 inches to 12 feet 5 inches are available, according to the manufac-

The Eimco Corp., Dept. C&E, P. O. Box 300, Salt Lake City 10. Utah. Circle No. 115 on Request Card.



#### A chemical reaction, not a lubricant, is the best concrete release agent!

NOX-CRETE FORM COATING reacts chemically with steel forms to develop a water and rust proof film that permits foot traffic...functions even days later as a positive concrete release agent. Nox-CRETE Form Coating is a chemical, not an oil...leaves a smooth, flat white surface. Moreover, Nox-CRETE costs you less because Nox-CRETE Form Coating used on steel covers up to three times the area covered by the same amount of ordinary form oil. Nox-CRETE eliminates rust spots and spalling, makes patent forms self-cleaning...reduces maintenance costs as much as 50%. Used with wood forms, the byproducts of the chemical reaction waterproof the wood, double the life of the forms. Write today for data sheets, name of your nearby distributor and instruction sheets on all uses.

THE NOX-CRETE COMPANY

20th & William Sts.

Omaha, Nebraska

# NOX-CRETE FORM COATING

The Original Chemical Release Agent

For more facts use Request Card and circle No. 314

### **EXPERIENCE**

#### In Designing and Manufacturing Equipment

"Advanced Design" describes the kind of engineering think-ing that goes into the creation of Airplaco pneumatic placing equipment. This advance-designing comes from years of research, testing and speciali-zation in the field of pneumatic placement. Its result is equip-ment that will speed your jobs, lower your costs and allow you to make a profit.

# EXPERIENCE IN SOLVING YOUR PROBLEMS







**EXPERIENCE**In Training

Your Crews

By "going that extra mile" . . . . having a factory-trained man on the job to train your crew . . . . Airplaco and its authorized distributors provide you with extra dividends that mean extra profits. With your operating crew properly trained and certified, your equipmen will operate at peak efficiency at all times, meaning even greater savings for you. Factory-trained service men train and certify your crews on all major Airplaco products — and at no added cost to you.

and Certifying

**Your Crews** 



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PLACEMENT QUIPMENT CO.

1007 W. 25th St. . Kansas City 8, Mo.

WORLD'S LEADING MANUFACTURER OF "ADVANCED DESIGN" PHEUMATIC PLACING EQUIPMENT

For more facts use Request Card and circle No. 315





#### **Announce new ripper** for tractor loader

A heavy-duty ripper specifically designed to match the performance of the Caterpillar 966 Traxcavator has been added to the Ateco

Designated Model HR-966, the new ripper features dual-cylinder hydraulic control, and offers a 14-inch ripping depth, with optional depths to 32 inches. Ground clearance with standard shanks is 3 feet 9 inches with pinned shanks, or 2 feet 5 inches with shanks hinged.

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American Tractor Equipment Corp., Dept. C&E, 9131 San Leandro St. Oakland 3, Calif. Circle No. 114 on Request Card.

#### Truck crane features 4-speed transmission

The Harnischfeger Corp. offers a new 25-ton truck crane featuring 4-speed transmission as standard equipment in the upper machinery.

According to the manufacturer, use of 4-speed transmission in the upper machinery will enable the operator to pick up maximum rated loads at low engine speeds with increased safety and precision.

The Model 325-TC can handle a maximum boom length of 110 feet, plus up to 30 feet of jib. Other ratings include a maximum lift of 8,000 pounds when the machine is used as a clamshell or dragline

Harnischfeger Corp., Dept. C&E, 4400 W. National Ave., Milwaukee 46, Wis. Circle No. 113 on Request Card.

# **NEW DESIGN! NEW EFFICIENCY!**



Asphalt men designed it. Asphalt men tested it. The tested for two years on every type and grade of asphalt available, over three million gallons in all.

#### OTHER PRODUCTS OF STANDARD STEEL

... AGGREGATE SPREADERS ... PIPE LINE EQUIPMENT . . . SUPPLY TANKS ... SHELVING HARDWARE ... AND AG-RICULTURAL EQUIPMENT

#### MODEL 424-56 PRESSURE DISTRIBUTOR

New power, New pump, All new fea-tures—as follows: A new "Econo-bar" spray bar in addition to the famous Standard Steel "Miracle" spray bar. New hydraulic spray bar lift. More convenient, easier to operate controls. Shorter, simplified piping to reduce heat bleed-off.

The Model 424-56 is built in 1000, 1250 and 1500 gallon capacities as standard and can be furnished in other capacities, either truck or semi-trailer

Write for Catalog #RS1256 or see vour dealer.



Standard Steel Works, Inc. north kansas city, Mo.

For more facts use Request Card and circle No. 316

# SIASH Costs of Gravel Loading and Screening



Here's LOW COST loading and screening with no sacrifice of strength or capacity. The KOLMAN Model 202 meets the demand for a conveyor in the low price field strong enough to carry a large single or double-deck vibrating scre and loading trap on a completely portable conveyor-screen plant.

#### "BOX-TYPE" CONSTRUCTION

Unusual strength and rigidity are achieved with the Model 202's rugged "box-type" construction. The steel belt cover reaches completely across the top, completing the box and encasing the re-turn belt to prevent materials from working in to cause belt damage.

#### FOLDING FEATURE

The 202 is available with the Head Pulley Clutch feature which allows the belt to be stopped and started while the vibrating screen remains in operation. Single-deck vibrating screens fold under for towing without dismounting the screen or any of the drive assembly.

The KOLMAN 202 will take the kind of punishment that is dished out to a portable outfit - and will cost you less money to own and operate. Available in 18" to 24" belt widths, in lengths up to

WRITE FOR LITERATURE AND PRICES

KOLMAN MANUFACTURING CO.

**4922 West Twelfth Street** 

Sioux Falls, S. Dak.

Seaman-Gunnison's new Duo-Stabilizer follows a cementspreading machine, scarifying, mixing soil and cement, and compacting in one pass. During the second and final pass, maisture is added to the mixture and further compacting is done. Up to 15,000 square yards of soil-cement 6 inches deep repartedly can be prepared in one day. Seaman-Gunnison Division, Seaman Corp., Dept. C&E, P. O. Box 3025, Milwaukee 18, Wis. Circle No. 63 on Request Card.



# Give your toughest wire rope jobs to **Purple Plus**

#### Brute Strength

For any job requiring brute strength, Bethlehem Purple Plus, with IWRC, is the rope to use. This top-flight rope is specially engineered, and is rated 15 pct above the catalog strength of Bethlehem Purple Strand—a fine rope in its own right.

#### Abrasion Resistance

Ability to resist abrasion is where Purple Plus shines. With its tough wires, and the extreme care with which the rope is made, it will give excellent service on jobs where abrasion is a dominant factor.

#### Durability

Purple Plus reduces wire rope costs because it is built for rugged service. Put it on your roughest jobs and watch it perform.

Purple Plus, with IWRC, is far and away your best buy for the toughest jobs. It's Preformed for easy handling.

Steel Store Strength

There's a distributor of Bethlehem Rope near you, supplied by our nationwide network of wire rope mill depots.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA. Export Sales: Bethlehem Steel Export Corporation

### BETHLEHEM STEEL

For more facts use Request Card and circle No. 318



# New spray lubricant for shop, field use

Spray Products Corp. announce the addition of Spray White All-Purpose Loob to its line of spray products

Offered in a 16-ounce pressuring can, the new lubricant is designed to a variety of uses in the maintenance shop and in the field. The manufacturer reports the product will protect all metal surfaces and lubricate hard-to-reach areas.

Spray Products Corp., Dept. Car. P. O. Box 1988, Camden 1, N. J. Circle No. 116 on Request Card.

# Heavy-duty jacks form mobile unit

A new mobile jacking unit, consisting of four or more heavy-duty hydraulic jacks with hose and control mounted on a cart, is announced by Templeton, Kenly & Co.

The unit consists of four portable 15-ton hydraulically powered Hydro-Toe jacks for making lifts up to a inches on cap or toe. Each jack is connected to a powered hydraulic pump by means of 30-foot sections of hose that can be coiled on reels when the jacks are not in use. Motor and reels are mounted on the cart that carries the jacks from one location is another.

Each jack is connected to a 4-wa valve that can be operated in an combination so that two, three, of four jacks will lift simultaneous Each jack also can be raised independently of the others.

Templeton, Kenly & Co., Dept. Chi. 16th St. and Gardner Road, Broadview, Ill. Circle No. 6 on Request Card.



Templeton, Kenly offers this mobile unit consisting of four or more 15 to bydraulic lacks.

CONTRACTORS AND ENGINE

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Yaun Mfg.
P. O. Box 1
Circle No. 26
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PTEMBER

#### New heavy-duty pusher is diesel-electric rig

A new 840-hp rubber-tire tractor, designed for push-loading big-capacity scrapers, is announced by R. G. LeTourneau, Inc. The diesel-electric machine is called the Pacemaker Series K-103.

Two diesel-electric generating plants supply power for three electric wheels on the Series K-103. This electric-drive combination is reported to develop over 90,000 pounds of

drawbar pull, measured dynamically. The tractor is 42 feet long  $\times$  15 feet wide  $\times$  16 feet high. It has two

feet wide × 16 feet high. It has two wheels forward and a single wheel (which steers) at the rear. Wheels are individually powered, each with its own de motor and gearing built inside the hub.

R. G. LeTourneau, Inc., Dept. C&E, Box 2399 S. MacArthur, Longview, Texas. Circle No. 25 on Request Card.



Dirt at a ton a second is loaded into a 36-yard scraper by the Pacemaker Series K-103 tractor on a Pacific Northwest construction job.

# Idling control feature of engine generators

A new safeguarded automatic idling control and superior engine performance are reported features of the new Winco Super Lite engine generators announced by Wincharger Corp.



The new models are equipped with an automatic conserver that is safe-guarded by its protected location. This idling control may save up to 60 per cent in fuel cost, the company claims.

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ydroto 1 The Super Lite units are rated at 3,000 watts, intermittent duty; designed for manual, electric, or remote starting; and are available with a choice of five mountings.

Wincharger Corp., Dept. C&E, Insurance Bldg., Sioux City 2, Iowa. Circle No. 31 on Request Card.

## Device guards against crane-boom collapse

A new crane safety device said to virtually eliminate hazards to life and property caused by boom collapse is announced by the Yaun Mfg. Co. The new boom stabilizer, according to the manufacturer, assumes the weight of boom and load in any kind of failure, lowering both gently and slowly to the ground.

Consisting of a closed-circuit, 3stage hydraulic ram, the boom stabilizer is installed between the pendant, bridle, and gantry blocks of cable cranes, and works independently of cables, drums, or gears.

Control is positive; on-start speed can be set to any preference and overridden by the brake, according to the company. Optionally available is a Fail-Safe action that holds boom and load stationary when a failure occurs. In addition to its safety features, the boom stabilizer acts as a shock absorber during crane operation.

Yaun Mfg. Co., Inc., Dept. C&E, P. O. Box 1508, Baton Rouge, La. Circle No. 26 on Request Card that is bound into this issue. Now! Any old electric hammer is worth \$60 or more trade-in



# ...the hammer that revolutionized masonry drilling

Your Skil distributor is ready to give you a whopping big trade-in allowance on a new Skil Roto-Hammer—the fastest, easiest, lowest cost way to drill masonry holes! You'll actually receive \$60 or more worth of Skil Hammer accessories as your trade-in for any old electric hammer, regardless of make, model or condition.

Two Roto-Hammer models are available

-new, improved Model 726 (drills masonry holes from  $\frac{11}{6}$ " to  $\frac{11}{2}$ " diameter); Model 736 (drills masonry holes from  $\frac{11}{6}$ " to  $\frac{31}{6}$ " dia.)

(drills masonry holes from ½ to 3½ dia.). See your Skil distributor NOW for complete information. But hurry! This sensational trade-in offer is for a limited time only! Look under "Tools—Electric" in the Yellow Pages. Or write: Skil Corporation, Dept. 1071, 5033 Elston Avenue, Chicago 30, Illinois.

SKIL POWER TOOLS

#### Only Skil Roto-Hammers have 3-way action



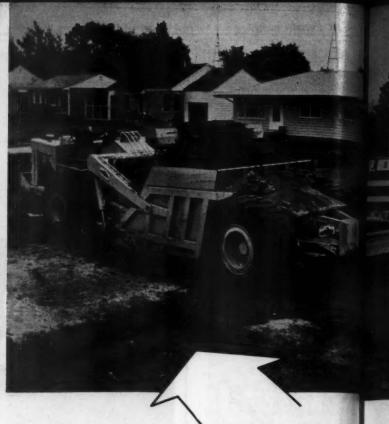




For more facts use Request Card and circle No. 319

...and only Skil Roto-Hammers use 4 types of percussion-rotary bits...over 150 accessories in all for unequalled versatility!





# Which is best for YOU? Elevating scraper.....

#### A Replaced 3 trucks and a loader

On street grading project, Arcon Construction Co., Mora, Minn., had been using 4 machines — a front-end loader and 3 trucks — to move windrowed dirt. Production averaged about 768 yds in an 8-hr day. Arcon upped this to 864 yds for same period by switching to one machine — a LeTourneau-Westinghouse D Tournapull® with 10-yd Hancock elevating scraper. "It is 3 times faster than our other method of operation," reports Superintendent Rubin Wroolie, "and moves more dirt. It goes in and self-loads, hauls, spreads, does the entire job all by itself. Our Tournapull works under wet, soggy conditions where our trucks bog down."

#### ▲ Self-loads in 45 to 75 seconds

Irving Jensen Construction Co., of Sioux City, Iowa, used 143-hp D 'Pull-Hancock scraper combination with these results: It completed 5835-ft cycles in less than 10 minutes — self-loaded heavy, damp clay in 75 seconds — dry loose materials in 45 seconds. The job: grading streets in Coralville, Ia. "It works on its own," reports grade foreman Everett L. Givan, "frees our pusher for other work." As scraper cuts the earth, an electrically-driven slat-type elevator pulverizes the material, carries it up and back into the bowl — loads the last half yard as fast and easily as the first! Spread time: 5 to 10 seconds with positive load-ejection.

#### MORE LW PRODUCTS THAT WILL PUT YOU TIME AND MONEY AHEAD:



#### TOURNAROPE®

The flexible, short-lay wire rope that resists crushing or kinking. Sizes: 1/4 to 2-inch dia. Lengths to 60,000 ft.

# V-Power TOURNAPULLS

290-hp, 20-heaped-yd "C"...and big 430-hp, 29-yd "B". Top power/wt ratio and electric controls permit tandem scraper operation. Interchangeable 22 and 35-ton Rear-Dump bodies.



#### SPEEDPULL®

37.7-mph, 6-wheel "C". 276 hp. 20-yd Fullpak® scraper... 40 yds in tandem. Hydrair® suspension eliminates axle and springs on front wheels...permits full 42° front-wheel turn.

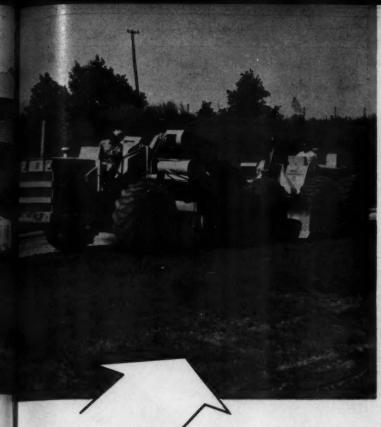
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# .. or conventional scraper? D'Pull has both

#### A Paver-ready cut in one pass

50 miles of "trench", 4 ft wide, 6 inches deep had to be cut next to pavement, to widen U.S. 16 near Farmington, Michigan. Above photo shows how Holloway Construction Co. handled the job with 2 D Tournapulls and a Tournatractor®. The 9-yd LW scrapers (fitted with special blades limiting cut to exact 4-ft width and 6-inch depth) dug the trench on a one-pass basis. And, with short 24-ft 3-inch turn-radius, the "D's" moved in and out of traffic-and-trench fast.

Choice of 10-yd Hancock elevating scraper or 9-yd LW scraper doubles the D Tournapull's value to you on production dirtmoving as well as on clean-up work. Both scrapers are interchangeable. And, with either one, you get these proven D 'Pull benefits: power-transfer differential, electric controls, kingpin power-steer, choice of power-shift or step-gear transmission, speeds up to 30 mph, and permit-free roadability. Remember, too, you can also use two LW 9-yd scrapers in tandem, or switch any time to 11-ton Rear-Dump. Worth looking into? You bet! Call us and see.



#### ETOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

Subsidiary of Westinghouse Air Brake Company

Where quality is a habit



#### TOURNATRACTOR

The mobile LW tractor on rubber, with speeds to 18.5 mph, that handles 85% of your tractor jobs twice as fast as crawler 218 hp. Choice of electric or hydraulic blade control.



7 sizes from 85 to 190 hp, including 2 torque-converter POWER-Flow® models. Self-adjusting brakes standard equipment on all sizes. Full line of attachments inc. Preco "Dial-A-Slope" blade control.

For more facts, use Request Card and circle No. 320



#### **HAULPAKS®**

The sensational LW truck designed to earthmoving (not automotive) "specs". 5 sizes, 22 to 65 tons...up to 550 hp. 90-ton bottom-dump available. Exclusive Hydrair suspension. Power-transfer differential.

\*Trademark DPH-2428-DCJ-2



The Wydemower, offered by O. W. Kromer Co., cuts a 25-foot swath.

#### Mower has 3 sickles; cuts 25-foot swath

A new mower that cuts a 25-foot swath has been added to the line offered by O. W. Kromer Co. The Wydemower was designed especially for highway maintenance and is said to cut three times as much as mowers currently in use.

The engine of the Wydemower is behind the driver, so that he has an unobstructed view of the three sickles in front of him. The sickles are raised by hydraulic power for fast action over obstructions. Each sickle is powered by an electric motor and can be operated separately. Safety releases automatically protect the outboard sickles.

In addition to the sickle bars, the new mower is available with rotary cutters that will cut up to a 14-foot swath, as well as hammer and flail-type mowers. It can be equipped with quickly detachable mowers and used, with attachments, as a street sweeper, dozer blade, loader, or snowplow.

O. W. Kromer Co., Dept. C&E, 1120 Emerson Ave. N., Minneapolis 11, Minn. Circle No. 50 on Request Card.

## Portable housing units for construction crews

Introduction of the Economy S and Economy SP lines of portable field housing units has been announced by Porta-Kamp Mfg. Co.

Heavy-duty Economy S buildings are skid-mounted, and may be shipped erected or knocked down to one-fifth of their erected size. This series is available in sizes ranging from  $8\times 10$  to  $10\times 24$  feet as single units. Combination unit sizes range from  $16\times 10$  to  $50\times 24$  feet.

Large, single, permanently erected Economy SP units are available in  $8\times32$ ,  $10\times30$ ,  $10\times40$ , and  $10\times50$ -foot sizes. These units include central kitchens, central baths, one or multiple-room bunkhouses, family quarters, etc.

Features of all units include aluminum exteriors, one-piece fiberglass roof, choice of insulation, and aluminum and steel windows and

Porta-Kamp Mfg. Co., Dept. C&E, 3601 W. 12th St., Houston, Texas. Circle No. 41 on Request Card.

#### Floor coating cures, hardens concrete

A transparent compound for curing, sealing, and hardening concrete surfaces has been introduced by Permiteco, Inc. Permite V160 is said to be completely effective on freshly placed concrete floors or vertical surfaces in one application, thus eliminating separate applications of curing compound and hardener.

Floor paints, adhesives for asphalt, rubber, or other types of resilient

flooring may be applied over free placed concrete cured with V160, is claimed. The compound is resistant to alkalies, water, greases, salts, a phatic solvents, and most other chapicals, the manufacturer points of Application may be made by spray.

Permiteco, Inc., Construction M terials Division, Dept. C&E, P. O. 2 206, Station A, Dayton 2, Ohio. Circ No. 49 on Request Card.

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Spreading width of the Power-Pack Model 605 truck-drawn shoulder spreading machine has been increased to 6 feet.

#### Increase work width of shoulder spreader

The spreading width of the Power-Pack Model 605 truck-drawn shoulder spreading machine is now increased to 6 feet, the Power-Pack Conveyor Co. announces.

The strike-off blade is adjustable to any width from 2 to 6 feet, and hand screws control raising and lowering of the curved strike-off blade, permitting constant grade up to 5 inches above or below grade, the manufacturer reports.

All standard models are now also equipped with Wisconsin 12.5-hp gasoline engines, electric starter, generator, and 12-volt battery.

Power-Pack Conveyor Co., Dept. C&E, 636 E. 140th St., Cleveland 10, Ohio. Circle No. 34 on Request Card that is bound into this issue.

# for concrete walls

A new concrete wall form called the Atlas Compo form is offered by the Atlas Concrete Form Division of Conver Steel & Wire Co.

The new form features a one-piece, high-tensile-steel frame, and a method of attaching the plastic-coated plywood panels to the frame that is said to result in a blemish-free concrete surface.

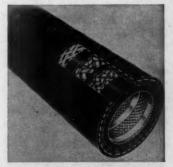
Atlas Concrete Form Division, Conver Steel & Wire Co., Dept. C&E, 690 E. 132nd St., New York 54, N. Y. Circle No. 61 on Request Card.

## Heavy-duty steam hose for construction rigs

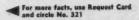
A new burstproof steam hose for use on heavy-construction machinery is announced by Raybestos-Manhattan. It is designed for saturated steam at pressures up to 200 pounds, as used in pile drivers, steam hammers, portable pumps, and other equipment.

The new Ray-Man HD pile-driver hose is said to feature increased service life and improved safety. It reportedly is crushproof and resistant to the harmful effects of oil. Special construction eliminates sloughing of the tube and costly fouling of equipment, the company reports. The tube is of thick neoprene lined with asbestos fabric and heavy-gage, flat steel spirals.

Raybestos-Manhattan, Inc., Manhattan Rubber Division, Dept. C&E, 61 Willett St., Passaic, N. J. Circle No. 44 on Request Card.



Raybestos-Manhattan's new burstproof steam hose for heavy-construction equipment is designed for saturated steam at pressures ranging up to 200 pounds.



continuous tire inspections play a key role in keeping M-C&S' equipment on the go. The B.F.Goodrich Unified Contractors Program helps contractors save on all their rubber products—and protective clothing—requirements. Ask your BFG dealer to show you how this new program can help you.





30 TONS OF ROCK CRASH onto B.F. Goodrich Rock Service tires. Tires work two shifts a day on scrapers, bottom dumps, rear dumps, water wagons, graders, rollers and mobile cranes. Yet it's not unusual for tires to be retreaded twice.

# B.F. Goodrich helps move a mountain to build a dam

12-MILLION CUBIC YARDS OF ROCK AND EARTH FILL RIDE TO \$50-MILLION COUGAR DAM PROJECT ON B.F.GOODRICH TIRES

They're changing the topography of Oregon's Willamette Valley. Rock quarried from a knob high above the South Fork McKenzie River is taxied down a tortuous road by a fleet of giant earth movers. It will become part of the fill for Cougar Dam, a Corps of Engineers flood control project that will be the largest structure of its type in the Northwest.

Altogether, general contractor Merritt-Chapman & Scott Corp. will move 12-million cubic yards—every one on B. F. Goodrich tires. You'll find B.F. Goodrich Rock Service tires with Cut Protected compound hard at work here. BFG developed this compound for jobs like Cougar Dam, where upwards of 30-ton loads must be carried over hard, rock-surfaced roads. It takes a mighty big boulder to gash this compound, and if it should, there's BFG Flex-Rite Nylon cord construction to withstand the impact (and resist heat blowouts and flex breaks too). No wonder many Rock Service tires at Cougar Dam can be retreaded twice.



B.F.GOODRICH ON-THE-SPOT SERVICE helps M-C&S get the most out of equipment. Tire changes seldom take longer than 15 minutes. BFG Servicemobiles carry all the latest power tools, are manned by tire experts.

B.F.Goodrich on-the-job service plays a key role in keeping M-C&S equipment on the go. All 600 BFG tires are inspected regularly. Tire changes seldom take longer than 15 minutes. There is a BFG tire warehouse and shop less than a mile from the project. A BFG tire record system keeps the contractor informed of costs and helps control inventory.

Supplying contractors with longer-wearing tires and dollar-saving service is an everyday job for B.F.Goodrich. On many projects B.F.Goodrich supplies everything from tires to boots to belts through its new Unified Contractors Program. Whatever your need, it will pay you to talk to your B.F.Goodrich dealer. His know-how can make a big difference in your profit picture. Look him up under Tires in the Yellow Pages. The B.F.Goodrich Company, Akron 18, Ohio.

Specify B.F.Goodrich Tubeless or tube-type tires when ordering new equipment





Mobile Drilling offers the Strokemaster Series of heavy-duty rotary drills in three models.

#### Heavy-duty drill rig available in 3 models

The new Mobile Drilling Strokemaster Series of extra-heavy-duty rotary drill rigs permits a choice of 12, 17, or 22-inch stroke for greater flexibility in the selection of drilling tools and procedures. All three Strokemaster models take rotary or down-hole tools to 500 feet in rock, auger 24-inch-diameter holes to 100 feet, and perform any standard sampling or testing procedure.

Construction features of these drills include heavy-duty power train with dual-range torque converter and 4-speed industrial transmission. The 4-inch tubular-steel mast has 25,000 pounds single-line pull rating.

Mobile Drilling, Inc., Dept. C&E, 960 N. Pennsylvania St., Indianapolis 4, Ind. Circle No. 10 on Request Card that is bound into this issue.

## New barricades feature transistorized lights

"Horse"-type barricades with new Blink-N-Beacon transistorized warning flasher lights are introduced by the Electronics Division of Barler, Inc. Because of their transistorized circuit, the new units have a minimum battery life of 1,500 hours, but in actual use average much longer, the manufacturer reports.

Operating on standard 6-volt drycell batteries, the new barricade flashers reportedly can be seen from either direction for a half mile in stormy weather and for much longer distances under normal conditions.

The barricades are available in two models. The standard model is built of heavy-gage steel with steel legs that fold for convenient storage, and is equipped with one or two Blink-N-Beacons with 5-inch-diameter lenses. A larger, heavier model with 7-inch flasher is also available.

Barler, Inc., Electronics Division, Dept. C&E, 214 W. Jefferson St., Goshen, Ind. Circle No. 8 on Request Card. Preco's new Form-Cote brushed on plywood forms is said to greatly extend usability of the forms.

#### **Epoxy-resin coating extends form life**

Preco Chemical Corp. has begun national distribution of a product said to extend the life of plywood concrete forms. The coating, containing epoxy resins, is called Form-Cote. It may be sprayed, brushed, or rolled on the surface of plywood forms.

The manufacturer reports that some contractors have used forms as much as 60 times by coating them with Form-Cote.

Two applications are said to elimi-

nate the sticking of concrete to forms and deterioration of wood due to water penetration. The coating also helps to provide a glassy-smooth, nonchip finish, virtually eliminates end-grain chipping, and cuts the weight of the forms because they do not absorb water, according to the company.

Preco Chemical Co., Dept. C&E, 589 Main St., Westbury, N. Y. Circle No. 42 on Request Card.



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On the I

# "EUC" TC-12



Your Euclid dealer will be glad to show you what a TC-12 can do in stepping up product and protecting profits on ripping work.



#### Track-link improvements for longer service life

Basic improvements in design and manufacture said to result in stronger, more durable track links with lower maintenance costs have been announced by Caterpillar Tractor Co. for the Models D7 and D6 tractors, 977 and 955 loaders, and 572, 561, and MD-6 pipelayers.

On the D7, 977, and 572, the crosssectional area of the rail has been increased by 12 per cent. This increases the link's structural resistance to breakage, reduces peening over the sides as wear limits are reached, and lessens distortion during rebuilding, according to the company.

Links for the D6, 955, and 561 are now Hi-Electro hardened. A harder wearing surface, with approximately 25 per cent longer service life and improved pin and bushing retention, is said to result from this additional process.

Caterpillar Tractor Co., Dept. C&E, Peoria, Ill. Circle No. 5 on Request Card bound into this issue.



Highway Trailer's Model HFMS earthboring machine reportedly digs to a depth of 30 feet in all types of soil.

# Best Ripper, Bar None!

# Before you drill or shoot . . . be real sure that a TC-12 can't do the job

With up to 35% more net h.p. and far more work capacity than other "big" crawlers, the Euclid TC-12 has almost unbelievable ripping ability. On job after job, full-power shift TC-12's are ripping rock that the biggest competitive tractors can't handle.

This unmatched ability to rip tough materials has greatly extended the use of scrapers and cut earthmoving costs on a wide range of work. On jobs that would ordinarily call for drilling, shooting and shovel loading, a TC-12 with ripper often permits the use of scrapers and provides a big saving in yardage costs. Equipped with dozer and ripper, the "Euc" is a versatile tractor capable of doing more work on any job... and doing it faster at lowest possible cost.

- More weight and net h.p. (100,000 lbs. 425 total net h.p.)
- Better Balance and Tractive Ability
- ⚠ Rugged Design of Rippers
- **△** Complete line of ripping attachments



### A new answer to "is it rippable?"

Prior to the availability of the big Euclid TC-12, material that couldn't be ripped by other tractors had to be drilled and blasted for shovel loading or dozing. Now with the power and traction of the Twin Crawler, you can rip rock and other material that simply isn't rippable with even the biggest competitive tractor. Here are a few of the jobs where a TC-12 can cut costs to new lows for tough materials:

Airport Construction...Highway Cuts Mines and Quarries...Missile Bases Dam Construction...Industrial Grading Pipeline Work...Logging Haul Roads



DIVISION OF GENERAL MOTORS, HUDSON, OHIO Plants at Cleveland and Hudson, Ohio and Lanarkshire, Scotland

## Offer new heavy-duty earth-boring machine

Highway Trailer Industries announces the new Model HFMS heavy-duty earth-boring machine. Designed to swing augers from 9 to 96 inches, and to bore to a depth of 30 feet in all types of soil, the rig offers variable speeds in feed and retraction, with down pressure to 20,000 pounds.

A 42-foot sheave is attained by a 3-stage hydraulic telescoping derrick with a 7,500-pound capacity. Hydraulic "all-way" leveling allows 45-degree lateral for anchor holes and 25-degree under vehicle. The hydraulically actuated clutch transmits up to 200 horsepower.

Highway Trailer Industries, Inc., Utility Division, Dept. C&E, Stoughton, Wis. Circle No. 28 on Request Card.

## Portable masonry saw is compact, versatile

The new Mitey-Mite portable masonry saw offered by Engineered Equipment, Inc., is compact enough to be carried from job to job in the trunk of a passenger car.

Powered by a 1½-hp motor, the saw can be used for ripping, jamming, and production cutting of materials. Featuring a self-positioning 14-inch blade guard, dual voltage switch, and precision-type cutting, the new Mitey-Mite can be used for dry or wet cutting, and cuts standard 16-inch blocks end to end without reversing, according to the manufacturer.

Engineered Equipment, Inc., Dept. C&E, 1001 Linden Ave., Waterloo, Iowa. Circle No. 117 on Request Card.



For more facts, use Request Card and circle No. 322



Republic Steel's new Trusspan steel building is quickly assembled, can serve many uses at the job site.

#### Steel building serves many needs at job site

A new industrial steel building assembled from off-the-shelf components for easy erection is announced by Republic Steel Corp. Called Trusspan, the building features pre-engineered sections that can be fitted together to form a wide variety of building types and sizes. It is delivered to the site as a complete package.

The building is recommended by the manufacturer for use in the field as a maintenance shop, storage shed, garage, or materials shelter. Available building heights are 12, 14, and 16 feet. Widths run from 30 to 80 feet, in 10-foot increments. Side walls can be of any material-steel, glass, brick, or stone.

Republic Steel Corp., Dept. C&E. 3100 E. 45th St., Cleveland, Ohio. Circle No. 48 on Request Card.

#### Grease gun contains battery-powered light

A high-pressure grease gun with built-in light is offered by Product Engineering Co. Called the LubriLite, the new gun is said to make it possible to save grease and time often wasted on hard-to-see lube fittings.

A self-contained, battery-powered spotlight operates by the same shortstroke trigger that fires the lubricant. The unit is enclosed in an aluminum die-cast housing, with threaded connections and valve seats made of steel. Over-all weight is under 2 pounds.

Product Engineering Co., Dept. C&E. 4707 S. E. 17th Ave., Portland 2. Ore. Circle No. 47 on Request Card.



#### New All-Weather Cab for Models TD9-92 series and TD20-201 series International Harvester tractors with Drott Skid Shovels

- de of heavy gauge sheet met
- Full vision safety glass windown mounted in rubber rear winds slides open for ventilation. Slant mounted slides open for windshield perm
- ar portion of cab slides back and the easily on rollers which ride on

CAMPRELL DETACHARIE CAR CO. WAUCONDA, ILLINOIS

For mere facts, circle No. 324

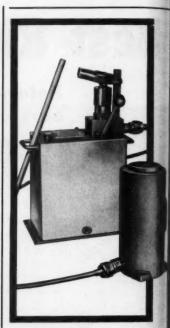
#### **New rustication strip** for poured concrete

Development of a new steel ru cation strip for use in pouredplace concrete has been announced by Symons Clamp & Mfg. Co.

The strip has a two-fold purpo to provide an interesting archit tural pattern for exposed conen and to provide expansion joints predetermined intervals in conce

The strip is available in any wi or length, and it may be re-used i definitely, the company claims.

Symons Clamp & Mfg. Co., De C&E, 4249 W. Diversey Ave., Chie 39, Ill. Circle No. 30 on the Requ Card bound into this issue.



bydraulic

# pumps and jacks

Because the pump is a separate unit, or nected by flexible tubing, Farrel Wass Stillman hydraulic jacks will give you a lifts in hard-to-reach spots. What's mathis arrangement divides the total weignaking portability easier.

Ranging in capacities from 20 to 10 tons, there's a jack for every type of o struction requirement, including pre-struction requirement, including pre-stru

#### FARREL-BIRMINGHAM COMPANY, INC WATSON-STILLMAN PRESS DIVISION

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re facts, circle No. 325 CONTRACTORS AND ENGI

#### WILLIAMS BUCKET DIVISION THE WELLMAN ENGINEERING CO.

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15 Reliable Williams Buckets are digging big

aggregates, etc. B. F. Diamond, prime contractor,

And quality is the outstanding characteristic of

Williams clamshell and dragline buckets. Made

of the best steels, welded throughout, they're

unexcelled for reliability and top performance.

tells us he can always depend on Williams to deliver buckets of the rugged quality he wants.

on this important job, performing general

tunnel construction work - constantly dredging, excavating, placing rip-rap, unloading

transportation

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COMPANY.

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Our new catalog gives full details on Williams Buckets for every application.

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**Improved** asphalt s

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ufacturer. West Coas Dept. C&E. 3 Calif. Circle N

STPTEMBER, 1

#### New tractor attachment for towing compactors

The Robison Mfg. Co. has announced a new tow attachment for LeTourneau-Westinghouse Tournapulis. The Robison Pull-Yoke is said to allow contractors owning oldermodel Tournapulls to get extended life out of these machines by using them for pulling compaction rigs.

A Pull-Yoke fitted to a Tournapull permits attachment of all types of

sheepsfoot rollers, as well as 50 and 100-ton rubber-tire rollers, the company reports. It is said to be easily attached in the field to any new or old-model Tournapull, and its rigid construction reportedly requires no maintenance.

Robison Mfg. Co., Dept. C&E, 3410 N. Adams St., Peoria, Ill. Circle No. 45 on Request Card.



The new Robison Pull-Yoke attachment for Tournapull tractors enables the prime mover to pull gangs of three or four sets of sheepsfoot rollers.

#### Mechanic's socket set is versatile shop aid

The new J. H. Williams & Co. Combo socket set is said to feature more drive power and versatility than do sets twice its size. With only seven basic driver parts, a mechanic can make hundreds of different drive combinations, from a flexible ratchet head to a sliding tee-bar. Eleven socket sizes range from % to 1 inch by sixteenths.

The Combo set features sockets made by a cold impact extrusion process, said to result in close tolerances, improved concentricity, and greater strength.

J. H. Williams & Co., Dept. C&E, 400 Vulcan St., Buffalo 7, N. Y. Circle No. 118 on Request Card.

## New hydraulic valves and conversion kits

Hydraulic Unit Specialties Co. announces development of a Husco line of standard multiplunger valves for use on a wide variety of hydraulic construction machinery. The new line, called Little Kernels, consists of two series, each with four models in one to four plungers.

Three plunger end kits are available for use with the four valves in each series. These permit ready conversion of the valve from standard spring return to neutral to four control positions—raise, lower, float, and neutral.

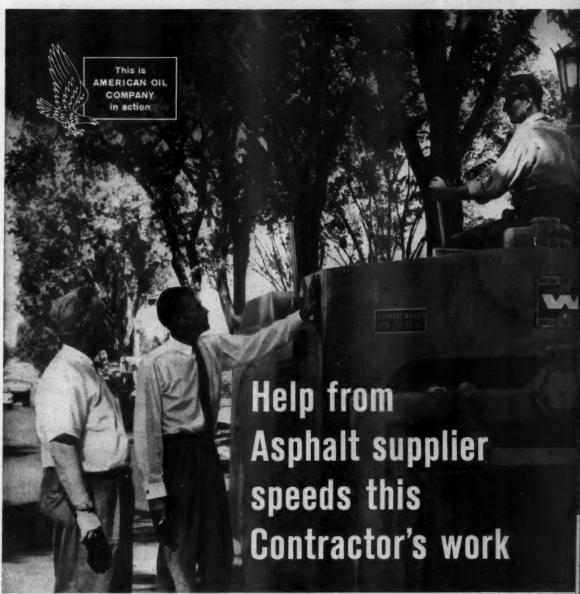
Hydraulic Unit Specialties Co., Dept. C&E, P. O. Box 257 E, Waukesha, Wis. Circle No. 46 on Request Card.

# Improved irons for asphalt smoothing

New, improved Surfa-Slick selfheating asphalt smoothing irons, either propane or gasoline-fired, are announced by West Coast Steel Products Co. The tools feature a redesigned paving iron shoe, with two wind deflectors said to allow the units to be operated under all weather conditions.

The cutting edges of the shoe are tapered to permit compaction right up to the surface of any wall or other obstruction. The Surfa-Slick irons heat in 10 minutes, maintain heat all day, and eliminate fire tending and transportation, according to the manufacturer.

West Coast Steel Products Co., Dept. C&E, 3120 Fifth St., Riverside, Calif. Circle No. 55 on Request Card.



On-the-job customer service speeds this Asphalt paving job. Here, American Oil's Frank Cocking (left) and White Construction superintendent Frank White, check paving detail with roller operator.



#### by FRANK P. COCKING About the author.

Twenty-seven years' experience in such work qualifies Frank Cocking to speak with authority about providing help to

customers. For the last eight years, Frank has devoted his entire time to selling and offering technical assistance to Asphalt contractors.

\* \* \*

When Appleton and National Avenues in Milwaukee were resurfaced by White Construction Company, we were able to help White make the job go smoother—and faster. Here's how: The contract for the job, which was part of a State highway project, called for 2,500 tons of Asphalt. Because of our being headquartered in Milwaukee, we were able to stay right with the job to (1) provide assistance when needed and (2) make sure deliveries of Asphalt were there on time. Our Whiting refinery is only 100 miles away. Because of the proximity of this Asphalt source, White could set up tight delivery schedules with assurance that deliveries would be on time. Whiting is one of eight Asphaltproducing American Oil refineries strategically located across the nation. Fourteen permanent terminals and one mobile terminal, plus barge, boat,

For more facts, use Request Card and circle No. 326

tank car, tank truck and even pipeline facilities are operated by American Oil to serve Asphalt contractors like White Construction Company.

Would you like service from an Asphalt supplier such as White Construction receives? Call your nearby American Oil office.

AMERICAN OIL COMPANY



910 SOUTH MICHIGAN AVENUE CHICAGO 80, ILLINOIS



The improved Oliver OC-96 loader features new loader-arm mountingframe design.

#### **Announce improvements** in tractor, loader

New 1961 models of the OC-9 crawler tractor and companion OC-96 loader, featuring a number of design improvements, have been announced by the Oliver Corp.

Among the adaptations in the OC-9 tractor, which is also the power unit for the OC-96 loader, are new vibration-absorbing mountings for radiator, new main-frame and transmission-case welding design, new-type brake linings, new aluminized muffler, new transmission snorkel-tube design for steep-slope operation, and new warning safety devices for brakes and ignition switch.

Oliver Corp., Dept. C&E, 400 W. Madison St., Chicago 6, Ill. Circle No. 20 on Request Card.

#### Power-steering line replacement kit

The Alemite Division of Stewart-Warner Corp. is offering the Surgepruf power-steering replacement kit, containing all required hose, couplings, tube assemblies in various angles, and all required adapters for replacing power-steering lines in trucks, tractors, and other rigs.

Contained in a metal carrying and storage case, the kit is said to make it possible to duplicate any hose assembly in a matter of minutes. Full instructions show how to match in every detail the hose being replaced.

Alemite Division, Stewart-Warner Corp., Dept. C&E, 1826 Diversey Parkway, Chicago 14, Ill. Circle No. 56 on Request Card.

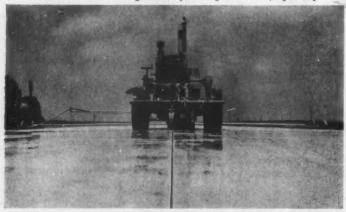
# DIAMOND BLADE SAWING OF CONCRETE

Case Report: CORONA, CALIFORNIA COST-\$.09 per linear foot

TYPE OF WORK-Concrete Highway AGGREGATE - Gravel

SAWING OPERATION - Diamond blades for all sawing TYPE OF DIAMOND - Engelhard Hanovia SND-MB diamond abrasive.

DIMENSIONS - Longitudinal and transverse 2" x 1/8". Transverse joints sawed at 4° angles-on 15 ft. centers. PRODUCTION - Longitudinal joints up to 4500 1/f per day.



The savings made possible by modern diamond blade sawing in initial highway construction are significant—but not nearly so important as its effect on maintenance. Diamond blade sawing produces the only joint that has proved reduction in maintenance costs—by as much as 50%! In California for example, where sawed joints are specified for all new highway construction, there is an 80-20 ratio between new construction and maintenance expenditures.

Diamond blade sawing maintains maximum concrete strength and homogeneity in the joint areas because material is removed, not displaced, eliminating the basic cause of spalling, cracking and chipping. Cuts are precise, with uniform highway and runway joints provided by high-speed, semi-automatic procedures that neither interfere with nor delay the actual paving operation, saving time and labor costs.

For detailed information and field-use reports from state highway officials and contractors, write to Engelhard Hanovia, Inc., for Report #101.

Engelhard Hanovia, Inc. is the leading supplier of SND-MB diamond abrasive, a result of research that has greatly increased diamond cutting efficiency, to diamond blade manufacturers



For more facts, use Request Card and circle No. 327

# anthes PROTECTING **EQUIPMENT** and **PROPERTY** WEATHERCAP FLIMINATES EXPENSIVE ENGINE REPAIRS FLAME GUARD CONSTRUCTION TORCH

ere facts, circle No. 328

#### New mobile cement sile has 425-barrel capacity

A new mobile cement-batching storage silo mounted on its own pe manent over-the-road running is announced by the Erie Strayer ( The new unitized silo has a maxim storage capacity of 425 barrels.

The over-all road length of new TPCS plant is less than 40 to from fifth-wheel kingpin to rear ent and the unit is 13 feet 6 inches his and 8 feet wide. Mounted on its ou running gear, the complete silo ca be conveniently towed to its wo site by a standard truck tractor,

The mobile unit is equipped with air-loading piping directly conne



and the products are **GRAY** and DUCTILE IRON CONSTRUCTION **CASTINGS** of finest QUALITY FINISH UNIFORMITY



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at the APWA Congress and Equipment Show



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New 168-page catalog shows or line. It's sent promptly when requested.

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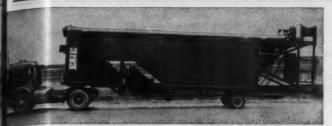
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Erie Strayer's new mobile cement silo travels the road on its own running gear, sets up for operation in less than an hour.

to the live-storage compartment, a factory-installed aeration system, an air-operated vibrator, and factorywired electric motors and drives. It can be put in operation in less than one hour after it arrives at a work location, according to the manufac-

Erie Strayer Co., Dept. C&E, P. O. Box 1031, Erie, Pa. Circle No. 13 on Request Card.

#### Offer optical transits with upright images

To meet the requirements of engineers and surveyors who prefer working with upright images in transits, the Wild Heerbrugg Co. has made this feature available on a number of its basic instruments. Both the Wild T-1A optical repeating transit and the T-16 optical transit are offered with erecting-image telescopes.

To differentiate these from the standard inverted-image instruments. they have been designated as Models T-IAE and T-16E. The Wild T-2 universal theodolite also includes the erecting-image telescope in the Model

Wild Heerbrugg Instruments. Inc., Dept. C&E, Main and Covert Sts., Port Washington, L. I., N. Y. Circle No. 54 on Request Card.

## DON'T VIBRATE **YOURSELF** INTO THE RED!

IF YOUR NEXT JOB CALLS FOR VIBRATORS CALL FOR A DART VIBRATOR SPECIALIST . . . there's a DART VIBRATOR for your exact job requirement



CONCRETE VIBRATORS

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IF IT VIBRATES DART MAKES IT!

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MFG. & SALES CO.

1002 South Jason Street Denver, Colorado

#### For more facts, circle No. 330 TIMBER, 1961

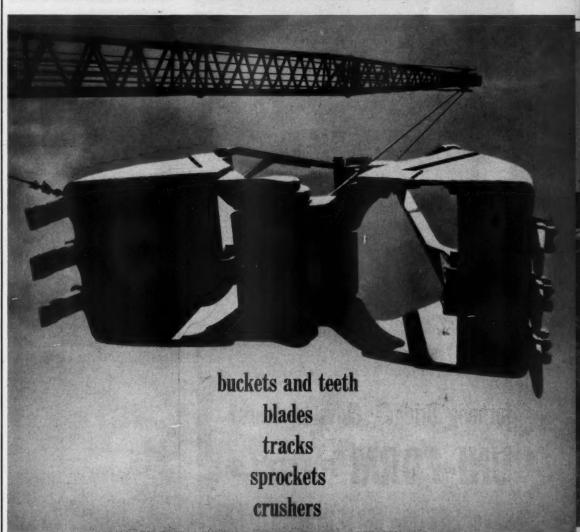
#### Sprayer line features capacities to 20 gallons

An improved and more varied line of sprayers for form oil and other liquids such as cleaners, paint-stripping solutions, insecticides, weed killers, light asphalt emulsions, etc., has been announced by Aeroil Products Co.

Aeroil heavy-duty vertical sprayers have capacities from 5 to 20 gallons and are available in com-

pressed-air or hand-pump models. Heavy - duty compressed - air - type horizontal sprayers come in 3 and 6gallon capacities. Medium-duty portable hand-pump sprayers handle 4 and 5-gallon capacities.

Aeroil Products Co., Inc., Dept. C&E, 69 Wesley St., South Hackensack, N. J. Circle No. 52 on Request



# hardsurface it with an Airco Electrode or Wire - and do the job faster

You put your equipment back into action with confidence

when you hardsurface it with an Airco electrode . . . or Airco automatic or semi-automatic wire.

Because the Airco line is complete you can always find an Airco electrode or wire designed especially to handle your most specialized job.

Does the job call for uniform hardness over the entire

your most specialized job.

Does the job call for uniform hardness over the entire area, plus welder appeal? You'll find the right electrode or wire in the Airco line. Do you need an all position electrode or wire, with outstanding arc stability? You'll find it in the Airco line. Want to make maximum coverage? You get it

with the Airco line.

To cut downtime... and lengthen the life of your costly equipment... hardsurface it with an Airco electrode or wire.

Special: — Send for a free copy of the new catalog, "Airco Hardfacing Electrodes and Wire." It illustrates 105 hard-surfacing applications, recommends the electrode or wire to use for each, gives characteristics and chemistry, and outlines procedure step by step. Never before has so much know-how been packed into such easy-to-read form.

Call Airco or look in your Classified Telephone Directory under "Welding Equipment and Supplies" for your nearest Authorized Airco Distributor.

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#### AIR REDUCTION SALES COMPANY

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For more facts, use coupon or Request Card and circle No. 331



The Hy-Hoe Model 480 crawler backhoe is the first product announced by a new Missouri manufacturer, Hy-Mac Corp.

#### Firm enters field with crawler backhoe

The Hy-Hoe Model 480 crawler backhoe is announced as the first product of a new company, Hy-Mac Coro.

The Model 480 features a 3-pump hydraulic system that permits the operator to work both boom and bucket while swinging. Boom, bucket, and dipper stick are controlled through six double-acting hydraulic cylinders powered at 1,500 psi. The new rig can dig 150 feet, 5 to 6 feet deep, in one hour, according to the manufacturer.

The new crawler backhoe offers a full 360-degree operational swing with a digging depth of 15 feet and a 23-foot reach in all directions. Closed dump height is 12½ feet. The rig is available with a 6-cylinder, 76-hp engine or an 82-hp diesel engine, Buckets from 16 to 36 inches are available for digging; larger or smaller buckets for special requirements are also available.

Hy-Mac Corp., Dept. C&E, 7216 Polson Lane, Hazelwood, Mo. Circle No. 36 on Request Card.

## New shore said to offer great safety, capacity

Safway Steel Products, Inc., offers what it calls a new concept in steelpost shores. The new Safload shore is said to offer on-the-job advantages



with greater safe-load capacity at maximum height, faster setting and stripping time, and minimum maintenance requirements.

Fast shore placement is reported to be attained with a new hand-grip spacer pin, eliminating the need for force and tools. All adjustments are located at a convenient working height.

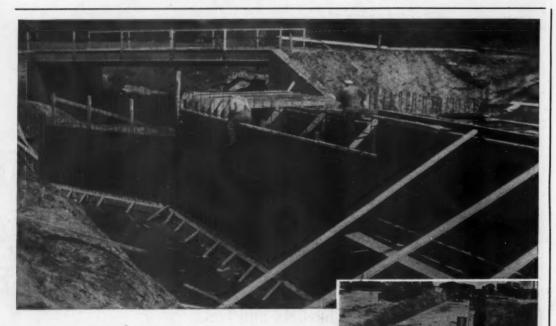
Safway Steel Products, Inc., Dept. C&E, 6228 W. State St., Milwaukee 13, Wis. Circle No. 32 on Request Card.

# Heavy-duty boring unit is gasoline-powered

The Ka-Mo G-160, a gasoline-poered horizontal boring unit capalof boring 36-inch-diameter holes, hbeen announced by the Kwik-Mix C Ratings range from 150 feet of 3 inch hole to 200 feet of 12-inch hboth maximum calculations in drilling with casing.

The new machine utilizes a 52air-cooled gasoline engine; 3-spetransmission and gear reduction we clutch; and a 9-gpm hydraulic purpowering the feed mechanism.

The G-160 is a self-contained, or pact unit said to feature stabil without auxiliary equipment; powers



forming Bridges, Culverts, Piers?

# UNI-FORM PANELS

# Save LABOR, MATERIAL, TIME!

Simple mechanical assembly and pre-engineered techniques for handling virtually any forming condition make UNI-FORM Panels your best bet for fast, low cost forming. Successful-contractors everywhere are using the UNI-FORM system to form bridges, overpasses, culverts, piers and abutments, because their experience has shown that UNI-FORM Panels give them the speed, flexibility and economy required to handle this complex type of forming at the lowest possible cost.

Let us prove our point. Send a set of plans for detailed forming specifications, recommendations and cost analysis. There's no obligation, of course.

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or more facts, use Request Card and circle No. 332

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The Ka-Mo G-1 capacity of 150 eter hole.

driven feed the of deadman and for maintaining variable speed mation conditions.

Kwik-Mix Co Co., Dept. C&E Port Washingto on Request Car

#### Blades for block and

Champion Mi the developmen masonry blades and tile cutting to feature a r welded to the i blade life.

One of the ne is a premium blong life and formance when ing to the ms M-51 is a lower M-68.

Champion M 3700 Forest Pa Mo. Circle No.

#### Roller for s road-widen

A new computer use on street as for shoulder highways, is ann Supply Co. TSF-84 is less the can be hauled with the can be hauled with the can be hauled with the can be ca

The rig is of swoline or diese rolling speeds t lasted, it obtains up to 495 psi.

Shovel Supply P. O. Box 1329, No. 62 on Reque



le ferguson Moder is easily to another.

MANUEL, 19



The Ka-Mo G-160 boring unit has a capacity of 150 feet of 36-inch-diameter hale.

driven feed that eliminates danger of deadman anchor; accurate control for maintaining grade and line; and variable speed to meet different formation conditions.

Kwik-Mix Co., division of Koehring Co., Dept. C&E, 235 W. Grand Ave., Port Washington, Wis. Circle No. 9 on Request Card.

## Blades for combination block and tile cutting

Champion Mfg. Co. has announced the development of two new diamond masonry blades for combination block and tile cutting. The blades are said to feature a new type of segment welded to the blade core to increase blade life.

One of the new tools, the No. M-68, is a premium blade. It provides extralong life and especially good performance when cutting block, according to the manufacturer. The No.
M-51 is a lower-priced version of the
M-68.

Champion Mfg. Co., Dept. C&E, 3700 Forest Park Ave., St. Louis 8, Mo. Circle No. 3 on Request Card.

## Roller for shoulder, road-widening work

A new compaction roller designed for use on streets and alleys, as well as for shoulder and widening work on highways, is announced by the Shovel Supply Co. The Ferguson Model SP-84 is less than 8 feet in width and can be hauled without being disman-

The rig is equipped with 70-hp rasoline or diesel power and achieves rolling speeds to 5 mph. Water-ballasted, it obtains compaction pressures up to 495 psi.

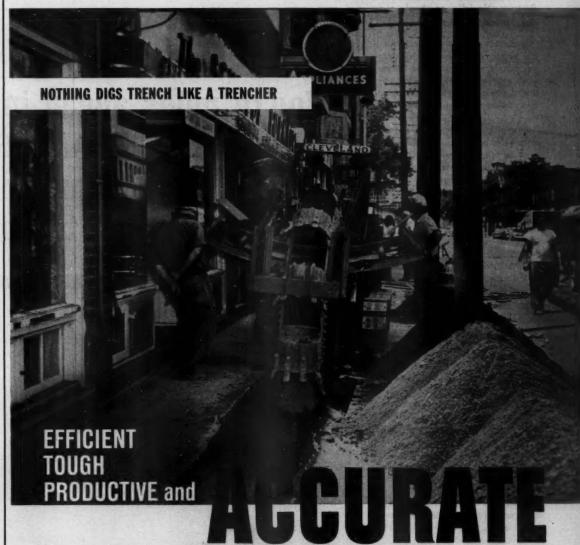
Shovel Supply Co., Inc., Dept. C&E, P. O. Box 1329, Dallas, Texas. Circle No. 62 on Request Card.



The Ferguson Model SP-84 compaction rater is easily hauled from one job

Demolition of old Cleveland Press Building in Cleveland, Ohio, is being expedited by the use of Harris cutting torches, according to the contractor, Harris Wrecking Co. The company explains that in this kind of demolition, it is important to use equipment that provides automatic lighting as well as proper balance for one-hand operation. Cutting the structural steel calls for unusual positions, with operator's safety dependent on the free use of one hand. The Harris torch in this case employed a Harris tip that cuts up to 1½-inch steel. Write to the Harris Calorific Co., Dept. C&E, 5501 Cass Ave., Cleveland 2, Ohio, or circle No. 39 on Request Card.





No other type of excavating machine digs trench with such precision as the modern, full-crawler-mounted, wheel-type trencher – the trencher originated and perfected by The Cleveland Trencher Company.

Look again at that picture. This Cleveland is digging in the middle of a sidewalk in a commercial area, working within inches of plate glass windows, hydrants, poles, etc. No other excavator approaches the accuracy of a trencher in conditions like this.

No other excavator digs to such accuracy of line, width and grade – no deeper or wider than necessary. This precision saves costly cubic yards of sand, gravel or other backfill, minimizes repaving expense, eliminates all excess spoil handling. The trencher safely places the edge of a trench within a few inches of walls, poles, trees, etc. and flush with curbs, pavement and other surface obstructions.

The continuous-type trencher leaves straight, clean, vertical-wall trench ready for immediate installation of pipe, tile or conduit, or pouring of concrete for building footings. It produces trench of all kinds, for all types of end uses — produces it better, faster and at lower cost.

Investigate now the profit potential of a modern trencher — a fast, dependable, accurate Cleveland Trencher.



THE CLEVELAND TRENCHER CO., 20100 ST. CLAIR AVE., CLEVELAND 17, OHIO

For more facts, use Request Card and circle No. 333



Homelite's new automatic idle control is said to cut pumping costs by permitting the engine to run at full speed only when there is water to pump.

## Offer new high-cycle concrete vibrator

A new high-cycle, motor-in-head concrete vibrator called the Hi-Viber is announced by the Viber Co. The 180-cycle, 230-volt motor, built into the vibrator head, produces 10,500 rpm.

The 20-inch vibrator head comes in 1% or 2%-inch diameter. Both sizes take interchangeable rubber, steel tips. Power is provided by a portable gasoline engine-generator plant. The generator produces ac and dc current



and can operate lights, etc.

The Viber Co., Dept. C&E, 726 a
Flower St., Burbank, Calif. Circ.
No. 24 on Request Card.

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## Automatic idle control cuts pump maintenance

Homelite's new automatic idle-control accessory for contractor's pumps automatically idles the pump engine when water drops below the suctionline strainer, and brings the engine up to full speed when the water level rises.

According to the company, the use of this new control cuts maintenance costs by reducing wear and tear on engine and pump parts. Fuel costs are also said to be lowered.

The new idle-control accessory is available for the Homelite 2 and 3-inch 2-cycle, engine-driven centrifugal pumps, and for the company's 1½ and 2-inch 4-cycle pumps.

Homelite, division of Textron, Dept. C&E, 71 Riverdale Ave., Port Chester, N. Y. Circle No. 17 on Request Card.

# Two models of new jack-leg trencher

A new Ditch Witch jack-leg trencher mounted on rubber tires is available from The Charles Machine Works, Inc., in 9 and 12-hp sizes.

The jack installed on the trencher allows one wheel to be lowered as much as 12 inches, so that the machine may be maintained on a vertical plane while the wheels are driving on two different levels. The trencher is offered in two sizes: the 9-hp M4-L, which digs trench from 3 to 8 inches wide to depths of 4 feet; and the 12-hp M4-22L, which digs trench 3 to 12 inches wide to 5 feet in depth.

The Charles Machine Works, Inc., Dept. C&E, 636 B St., Perry, Okla. Circle No. 124 on Request Card.

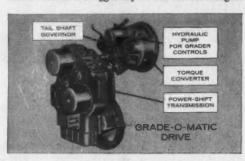


# You're miles ahead in performance with GALION GRADERS on the job. They're built to put more WORKPOWER at the blade

HUSKIEST GRADERS BUILT. You get strength to spare from Galion's extra-rugged frame. It's engineered for low-maintenance operation . . . for extra years of cost-cutting performance.

MORE "PUSH-POWER." Full working capacity results from the careful weight-to-horsepower balance built into Galion graders. You get more "push-power" at the blade. That's where power counts most.

EXCLUSIVE GALION DESIGN teams up with heavy-duty engine, rugged transmission, powerbooster steering and centralized controls to speed operation. Result is a bigger day's work with less fatigue.



GRADE-O-MATIC DRIVE—THE ULTIMATE efficient grader operation. It combines torque to verter drive, power-shift transmission and tail-shigovernor to provide fully automatic power application.

TORQUE IS MULTIPLIED automatically. Moverying power needs without constant shifting. Gro-Matic operators are free to concentrate on mefficient blade work on every job.



For information on graders from 58 to 220 hp, weighing up to 42,000 lbs., contact your Galion & tributor or write for latest catalog data. The Galaron Works & Mfg. Company, Galion, Ohio, U.S.A.

THE GALION IRON WORKS & MFG. COMPANY, GALION, OHIO, U.S.A.



eneral and Export Offices, Calico, Ohio, U.S.A.—Cable Address, CALICHIRON, Co.

#### Add new line of eleven concrete power trowels

gieven new Whiteman power trowels are announced by the company. Among features of the new units are a stabilizer ring for smooth futter-free operation; lowered center of gravity; and longer handles resulting in less pull on the operator. A positive-action kill switch reportedly prevents the machine from running wild if the operator drops the handle.

The trowels are electric or air-



cooled, gas-engine-powered; have diameters of 30 to 46 inches; and are equipped with three or four blades. Whiteman Mfg. Co., Dept. C&E, 13020 Pierce St., Pacoima, Calif. Circle No. 43 on Request Card.

#### Lightweight finisher for bridge deck work

A new lightweight, self-propelled finisher for concrete bridge decks has been announced by the Chain Belt Co. The rig's light weight is said to allow economical and accurate mechanical finishing, especially on short bridge projects: to eliminate deflection problems; and to provide finishes that are as smooth as road sur-

The new machine includes a lightweight screed and non-telescoping Ibeam frame. The standard-size screed is 23 feet long and is equipped with two sets of extensions built to customer specifications. Each finisher is equipped with a standard 15-hp engine that is located—along with hydraulic pumps, screed transmission, etc.-in an end truck section.

Chain Belt Co., Construction Machinery Section, Dept. C&E, 4701 W. Greenfield Ave., Milwaukee 1, Wis. Circle No. 16 on Request Card.



# Gives a Man Giant Strength • SMALL POWERFUL · VERSATILE • PORTABLE A NATURAL FOR CONSTRUCTION WORKE

SEND FOR "CM" PULLER BULLETIN 146 AND NAME OF YOUR LOCAL DISTRIBUTOR.

#### CHISHOLM-MOORE HOIST DIVISION

The "CM" Puller will do a "thousand-and-one jobs for you. It will do them faster, safer and far easier. The "puller" is compact...stores conveniently in a tool box. Lifetime lubricated.

COLUMBUS MICHINGH CORPORATION TONAWANDA, NEW YORK NEW YORK - CHICAGO - CLEVELAND For more facts, circle No. 335



A Trojan Model 404 tractor shovel equipped with the new Contractors Specialties steel compaction wheel.

#### New compaction wheel fits over tractor's tire

Contractors Specialties Corp. offers a steel compaction wheel designed to be adapted to contractors' 2 and 4wheel rubber-tire tractors and loaders.

The wheel is mounted on the equipment's rubber tires, which serve as air cushions. This shock-absorbent feature reduces wear and tear on both the operator and the equipment, the manufacturer reports. The compaction wheel can be reily installed on a contractor's preequipment. When mounted on a totor or loader, the attachment is a to provide fast, efficient compact through the equipment's shuttle of eration, eliminating turn-around toloss.

Contractors Specialties Corp., De. C&E, 14913 East Ramona Blvd., Balwin Park, Calif. Circle No. 126 on Equest Card.

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Pieco Corp., 1970, Jackson

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# Tractor-mounted sweeper for street-paving jobs

A new tractor-mounted sweep with a collecting pan has been introduced by The Young Co. It is design for use with the lightest-mou utility tractors, using standard a point hookup.



The Young sweeper has a 30-in diameter, 6-foot-wide stands broom, and is said to sweep a dis 6-foot path right up to the curb. D signed with the paving contractor mind, the sweeper is fully control by the driver from the tractor se Capacity of the pan is approximate 12 cubic feet. The broom is adjustant to compensate for wear, and is spring balanced to maintain constant on tact on the ground without excession pressure on the broom.

The Young Co., Dept. Car., Mill St., Waco, Texas. Circle No. on Request Card that is bound in this issue.

## Backhoe models offered for use with maintainer

Parsons backhoe and Hydrocisattachments are now offered in Huber-Warco maintainers. The complete line of Parsons backhoes, whis includes four models, is now available as H-W maintainer attachments also with the Hydrociam, available in three bucket-width sizes.

Each model can be attached a detached in minutes by means of a Parsons 4-pin, quick-attach arrangement. The four backhoes are a Model 1000, with 10-foot distinct depth capacity; the 12-foot 1200; 13-foot 1300; and the 15-foot 15 The Hydroclam is available in 24, 3 and 36-inch buckets.

Parsons Co., division of Koshi Co., Dept. C&E, P. O. Box 431, New Iowa. Circle No. 249 on Request Co.

## BUILD HIGHWAYS THE ROME WAY



CLEARING RIGHT-OF-WAY. Rome K/G Clearing Blade shears off trees and brush, cuts stumps out below ground, then piles cut trees and stumps for clean burning.



AERATING. Rome Model TRH 20-30 Hinge Type Offset weighs over 9,000 lbs.—heavy duty construction for less maintenance, longer life.

TOUGH, VERSATILE AND MONEY SAVING. Rome Disk Plowing Harrows are available in many sizes and types. For aerating, mixing, scarifying, pulverizing—there's a ROME for your job, your equipment. See your Rome-Caterpillar dealer.



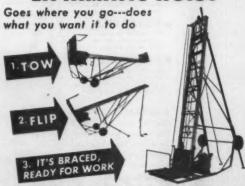
MIAIRY AND BLEMUING, Rome Model TRCH 10-36

MINING AND BLENDING. Rome Model TRCH 10-36 Hinge Type Offset Disk Plowing Harrow cuts up to 13" deep for low cost mixing, blending, bonding lifts.

For more facts, use Request Card and circle No. 336

#### Set Up In 21/2 Minutes -- A One-Man Job

# Sasgen Self-Erecting



Provides unloading heights from 13 to 40 ft.,  $7\frac{1}{2}$  hp. gasaline engine, centrifugal type governing downbrake (1000 lb. capacity), side-loading platform 34 x 60 lb. Also supplied with  $1\frac{1}{2}$  kH.2. Electric Meter for 500 lb. Capacity with mechanical brake.

Sasgen DERRICK COMPANY

3127 West Grand Ave. Chicago 22, III

For more facts, use Request Card and circle No. 337



#### with a IMITITUTE IR Tilt-Top

Miller's super fast, drive on tilt loading permits a paver operator to pick it up after laying each asphalt strip and return to the starting point at truck speed rather than a bare four mph. Just one example of how MILLER TILT-TOP's super-fast loading cuts non-productive time . . . lets you cover more jobs with fewer rigs. A variety of models from 4 to 20 tons with over or between-the-wheels platforms handle most rigs you use. See these production boosters at your local distributor now!

### models from 4 to 20 tons

see your local Miller distributor or write . . .



6-E Sa. 92nd Street wavelee, Wisconsin
For more facts, we coupen or Request Card and cards No. 330

CONTRACTORS AND ENGE

ing handle to ties on the 1-2,400 gph. Aluminum

duced over-all without power 2-bp air-cool Power diversifications or electric be equipped with coupling. All priming type.

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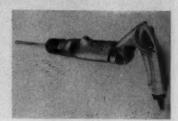


Fleco's new Model \$\$1012 Chopper cuts a 10-foot-wide swath in vegetation.

#### New plug-hole drill for hard-to-reach areas

A new plug-hole drill is announced by Atlas Copco, Inc. Weighing less than 6½ pounds and with an over-all length of only 14 inches, the tool is claimed to be the lightest, smallest pneumatic plug-hole drill with selfrotation that is available.

Called the Wasp, the unit is designed specifically for use in hard-to-reach areas. It is reported to be ideal for drilling % to %-inch-diameter holes in stone, concrete, masonry, brick, etc.



Atlas Copco, Inc., Dept. C&E, 545 Fifth Ave., New York 17, N. Y. Circle No. 60 on Request Card.

# New machine is added to land-clearing line

A new Model SS1012 Chopper has been added to the Fleco line of landclearing rigs. The new machine is designed for use with tractors of 130 horsepower and more, and cuts a 10feot swath in vegetation up to 8 inches in diameter.

When filled with water, the SS1012 weighs approximately 25,000 pounds, concentrating over 200 pounds on each inch of blade, according to the campany. Said to be easily maneuwerd, the SS1012 can be turned at sharp angles and backed with complete control. The rig cuts, fractures, and partly buries the vegetation it cuts.

Pieco Corp., Dept. C&E, P. O. Box 270, Jacksonville, Fla. Circle No. 35 on Request Card.

# Lightweight-pump line for variety of jobs

A new line of light pickup pumps offered by Rice Pump & Machine Co. is designed to include openings of ¾ and 1 inch on both suction and discharge. The pumps of ¾-inch open-



ing handle to 1,500 gph, and capacities on the 1-inch models range to 2400 gph.

Aluminum construction has reduced over-all weights to 18 pounds without power and to 43 pounds with 2-hp air-cooled gasoline engine. Power diversification includes gas engines or electric motors; models may be equipped with belt drive or flexible coupling. All pumps are of the self-priming type.

Rice Pump & Machine Co., Dept. Car. 400 Park Ave., Belgium, Wis. Circle No. 12 on the Request Card that is bound into this issue.

For more facts, use Request Card and circle No. 339

Special report to users of Caterpillar equipment:

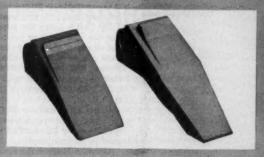


# New Cat No. 8 and No. 9 Ripper Tips outproduce other brands 25 to 50% in field tests

That's the kind of news you can use—to cut costs. This newcomer to the Caterpillar line of ground-engaging tools is making a name for itself with cost-conscious users.

They're exceptionally wear-resistant—hardened to Rockwell C50 for longer wear-life under any conditions.

Check the price! Improved Cat Tips sell for about the same or even less than other leading brands.



They're available in two new designs. Both the short and long tips shown in the photograph are self-sharpening to keep their working edge until replacement. The long tip gives extra wear-life with only a slight reduction in impact strength. Low-cost, weld-on shank adapters are available for all brands of shanks. No need to wait—you can put these new Cat Tips on your job immediately.

in field tests the short tip was pitted against two leading brands on rippers working in caliche and cemented conglomerate beds. The Cat Tip outproduced the other brands 25-50%—representing savings of 38-54% in replacement costs.

Outstanding impact strength! One No. 9 Tip, tested in solid granite, took 13 smashing blows from another D9 pusher that backed up 10 feet before each charge at the stalled D9 Ripper.



And here's another money-saving newcomer—Cat's new No. 7, No. 8, No. 9 End Bits are redesigned for better digging ability. They self-sharpen as they wear away for continuing like-new performance. They're forged alloy steel and heat treated for outstanding strength and wear-resistance.

Compare other ground-engaging tool brands against the Caterpillar line. Keep machine-hour records and find out for yourself which is the best buy. Those who do, buy Caterpillar.

See your Caterpillar Dealer for the best in parts and service.

Caterpillar Tractor Co., General Offices, Peoria, III., U.S.A.

CATERPILLAR

Discol Engines . Tractors . Motor Graders . Earthmoving Equipment



Atomic Reactor Facility, Cornell University, Ithaca, N.Y.

#### Catwalks Haunches Poured Together with Symons Steel-Ply Forms

Rouse Construction Company, Gouverneur, N.Y., with Symons Steel-Ply Forms was able to pour the walk around the reactor along with the catwalk and haunch above it monolithically. Pours approximated 16 feet per lift on this phase of the project. Symons Steel-Ply Forms are rented with purchase option. Symons Clamp & Mfg. Co., 4251 Diversey Avenue, Dept. J-1, Chicago 39, Illinois.

For more facts, use Request Card and circle No. 340



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illustrated

BATAVI

PIEMBER, 19

The M-R-S Model I-100 tractor, equipped with 4-whe drive and 4-wheel steer, here works with a hydrau dozer blade.

# You're in business QUICK with a

# GORMAN-RUPP Submersible

These All-American designed and built submersible pumps are simplicity itself. Unit has integral motor, lifting bail and power cable, plus a separate control box. No lining up. No levelling. Just hook up power and pipe the pump, drop'er in the water and you're in business—in minutes!

Gorman-Rupp Submersibles are automatic, electric and unattended. They pump down the supply and can run dry for long periods without damage. Special materials are used at wear points to handle silty water. Maintenance work when needed can be done with regular help, with ordinary tools. Nothing special

special.

There's no intake or suction line.
And you don't spend a cent to lift
water—every kilowatt of power is
used in pumping out!

Gorman-Rupp Submersibles will handle more water at less cost and less maintenance than comparable units. Available in seven models from 2" to 8" sizes and from 2 H.P. to 65 H.P. See your Gorman-Rupp Distributor or write direct.

At left, an 8' Gorman-Rupp Submersible on the Dillon Dam job in Colorado. At right, note the suction strainer the 8' pump will handle 1' solids. Weight of pump unit—775 lbs, including 65 H.P. motor (60 cycle, 3 phase, 220/ 440 volt).



#### THE GORMAN-RUPP COMPANY

GORMAN-RUPP OF CANADA, LTD.
St. THOMAS, ONTARIO

#### New tractors feature 4-wheel drive, steer

M-R-S Mfg. Co. has announced new line of 4-wheel-drive, 4-whe steer tractors. The present line of sists of two models—the 123-hp and the 175-hp I-100—equipped a torque-converter, power-shift transmission as standard equipment or a optional 10-speed constant-materials.

Independently controlled hydraul steering allows the operator to see front and rear wheels separated. The basic design of the new tracker is said to permit use with a wid variety of quickly mountable and mountable attachments, includin hydraulic dozer blades, hydraul scrapers, and such mounted attachments as hydraulic cranes, loader and backhoes.

The 4-wheel-steer feature is all said to make the new units especial suitable for powering heavy competion rollers.

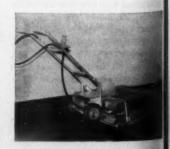
M-R-S Mfg. Co., Dept. C&E, P. 0 Box 1206, Jackson, Miss. Circle No. 2 on Request Card.

# Asphalt patcher uses infrared principle

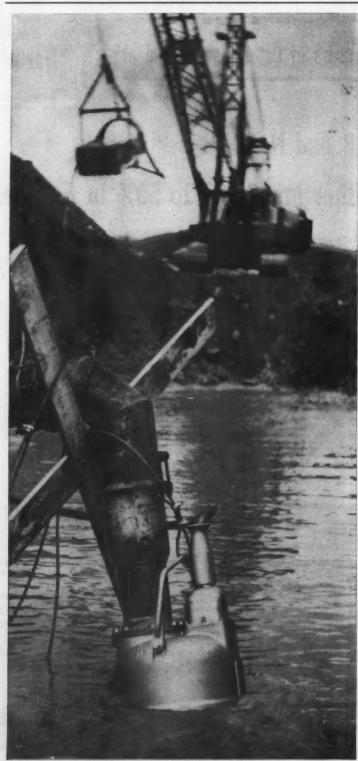
Aeroil Products Co. announces
Model HE-PR-32 infrared aspin
patching heater designed for use
removing push-ups, drying aspha
before patching, and a wide variety
other asphalt-heating chores.

The LP-gas-fired unit operates an infrared principle. Three heatin tubes emit infrared radiation, while is reflected by three parabolic reflectors onto the surface to be heated No flame touches the material.

Aeroil Products Co., Inc., De C&E, 69 Wesley St., South Hacket sack, N. J. Circle No. 38 on Reque Card.



CONTRACTORS AND ENGIN



For more facts, use Request Card and circle No. 341

#### portable auger-drill is versatile tool

General Metals Corp. has anced its No. 26100 portable auger-This convertible, self-contained power tool can auger or drill in soil, gravel, steel, masonry, wood, concrete, and other materials, the manufacturer reports.



A special 21/2-hp 2-cycle engine with recoil starter and diaphragm earburetor permits operation of the tool in either a vertical or angle po-

Maximum torque and adequate rpm permit a single operator to drill or auger holes from 1% to 9 inches, according to the company. A chuck adapter and chuck are said to convert this tool from an earth-augering unit to a steel-drilling tool in a matter of mo-

General Metals Corp., Dept. C&E, Watertown, Wis. Circle No. 129 on Request Card.



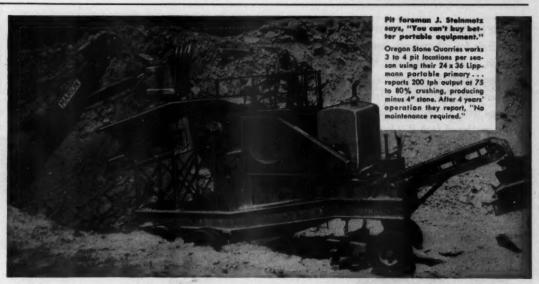
sco manufactures the most com-plete line of flasher lights and bar-icades on the market. Our heavy aty barricades are designed for eaximum economy of operation. Will not blow over. Rugged heavy-barricades with baked-on-plement enamel. Write today for the illustrated catalog.

ECTRONIC SPECIALTIES CO.

BATAVIA 3, ILLINOIS For more facts, circle No. 342

A 12-foot-long, adjustable jib boom that extends the versatility of its Model 200 truck-mounted hydraulic crane has been announced by Teale & Co. Mounted on the 16 to 28-foot telescopnounced by Teale & Co. Mounted on the 16 to 28-foot telescoping boom, the new jib provides a 47-foot hook height when in the straight-up position, and a horizontal reach of 40 feet. It has a lifting capacity of 1,000 pounds in the nearly vertical position. The fully hydraulic Teale 200 mounts on any truck with a curb weight of 5,500 pounds or more. For further information write to Teale & Ce., Dept. C&E, P. O. Box 308, Omaha, Nebr., or use the Request Card. Circle No. 250.





# WHY LIPPMANN PORTABLES REDUCE COST/TON CRUSHED

Biggest reason is higher rated output per size of jaw crusher — heart of any portable crushing plant. Con-sider the famous Grizzly-King primary crusher, for example. A comparison of specs will show you that Grizzly-King gives you up to 26% more crushing area, 23% less angle of nip, than other jaw crushers of same size rating. Contoured feed openings, and specially-shaped force-feed jaws, combine to reduce bridging of slabby material and increase material flow. Net result is bonus production and lower net cost per ton.

You'll make additional savings in daily operating costs. Massive counterbalanced flywheel (bigger than on other makes) more effectively stores power for crushing stroke, makes substantial savings in fuel costs. Oversize bearing assemblies, with removable retainer ring for easy field servicing, keeps repair and downtime costs to a minimum.

Lippmann's low travel height, and excellent weight dis-tribution on special springs and axles, let you travel from job to job with a minimum re-routing or permit problems. Let you set up with minimum jacking and blocking since Grizzly-King crushers do not transmit excessive power robbing vibrations to substructures.

Before you invest in a portable, check all the facts on Lippmann portables. See for yourself why Lippmann owners say: "You can't buy better portable equipment."

ENGINEERING WORKS, INC. MILWAUKEE 14, WISCONSIN

primary & dual crushers PORTABLE • washers, screening plants
• conveyors, hoppers, feeders
for more facts, use coupon or Rec



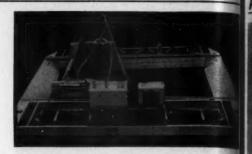
Owner Al Sells says, "When we're ready for another primary, you can bet it'll be a Lippmann."

Sells Bros. Stone & Gravel uses their 24 x 36 Lippmann portable at scattered pits in East-Central Wisconsin. Here, they average 150 tph with 95-100% reduction of blasted limestone, producing minus  $\frac{3}{4}$ " materials. At another location they reported 200 tph at 70% reduction.

	LIPPMANN ENGINEERING WORKS, INC. Milwaukee 14, Wisconsin
1	Tes, send details on how I can cut costs on my pertable crushing I'm interested in crushing plants: dual primary conveyors washers screening plants hoppers feeders
	Name Title
(	Company
4	Address
•	City Zone State



A new electronic tape printer devel-oped by Goodyear Aircraft Corp. ena-bles the boss to communicate with his field force. If absent from his truck or car, the supervisor will find informa-tion neatly transcribed on tape when he returns. Easily installed in a car, truck, or operations post, the tape printer is capable of being adapted to radio, telephone, or telegraph circuits. The 11-pound printer can take up to 120 words a minute. For further information write to Goodyear Aircraft Corp., Dept. C&E, Litchfield Park, Ariz., or use the Request Card. Circle No. 58.



#### New concrete spreader for road, airport work

Designed to improve performance on top-course placement of highway and airport slabs, a new model of the Maxon Dumpcrete concrete

spreader will spread and strike of a

Improvements in the Dumpere spreader include relocation of the strike-off on the spreader to allow improved visibility for the operator, larger-diameter hydraulic cylinder providing vertical movement of the strike-off, and a new visual gage app tem providing 3-to-1 movement of the strike-off height indicator.

The Dumpcrete concrete spreade is manufactured in two sizes, adjusable between 11 and 16 feet or 20 and 25 feet.

Maxon Construction Co., Inc., Dept. C&E, P. O. Box 625, Dayton 19, Ohio Circle No. 19 on Request Card.

#### New gas, diesel models of industrial tractor

Three new heavy industrial when tractors, the Models 1800 gas and diesel and Model 1900 diesel, ham been announced by the Oliver Corp. The new tractors have a maximum drawbar pull range of 10,619 to 12, 475 pounds, and a horsepower range of 80.5 to 102.

All three models are engineered for heavy-duty drawbar work with sheepsfoot rollers and compactor

6-yard load of concrete in 30 second the manufacturer reports.

> mitting speed eetfic tasks. The Model 1 maximum dra pounds and is engine. The 18 delivers 80.5 ho 640 pounds ma The 1900 has a gine delivering with 12,475 pou har pull.

The new Oliver

and for other h

manufacturer

needs forward

Oliver Corp., Medison St., Ch 30 on Request

#### European-m supports up

Newark Ladde announced the untry of Safe ing jacks. Man me shoring ja ort up to 9-ton to install and re The steel-encs into the lower pe minst dirt, a acked for sti There are no loo nd or get lost.

Newark Ladd L C&E, W Ave. Clark, N. st Card.



WHEN YOU NEED A PUMP, SEE A SPECIALIST ... SEE MARLOW!

So, when you need a pump, whether it's for an ordinary job or a special type of job, see a pump specialist...see Marlow. Start now by writing for our brand new Contractors' Bulletin CH-61...it's yours for the asking.

Our business at Marlow is pumps...pumps of

all kinds for all sorts of construction jobs. We

design, build and sell pumps for seepage...pumps

for flood control...pumps for jetting...self-prim-

ing centrifugal, straight centrifugal or diaphragm

pumps with air cooled or water cooled engines.

As a matter of fact, if it is a con-

tractor's pump you need, Marlow

Marlow's modern manufacturing

methods and up-to-date engineer-

ing techniques are constantly set-

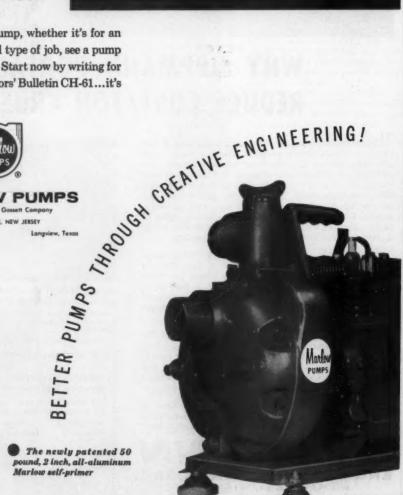
ting new standards of pump per-

formance and efficiency.

makes it...and makes it better!



The newly patented 50 ound, 2 inch, all-aluminum Marlow self-primer



For more facts, use Request Card and circle No. 344



RODGERS

# Pressing, Pulling...

To push the largest concrete tunnel shields or sewer pipe into place, to raise bridges, move buildings, to set reinforced concrete decking, to prestress concrete forms...for any jacking, lifting, pressure hydraulic equipment, you can be pend upon RODGERS Jacks. Immediate delivery, sizes from 50 to 600 tons. Oulline your requirements to us and let our engineers suggest the equipment best suited to your needs.

#### RODGERS HYDRAULIC, INC

CONTRACTORS AND ENGI



The new Oliver 1900 industrial wheel tractor features drawbar pull of 12,475 pounds for work with sheeps-

and for other heavy-duty pulling, the manufacturer reports. All have six speeds forward and two reverse, permitting speed and power control for specific tasks.

The Model 1800 gas tractor has a maximum drawbar pull of 10,619 pounds and is powered by an 85-hp engine. The 1800 with diesel engine delivers 80.5 horsepower and has 11,-040 pounds maximum drawbar pull. The 1900 has a GM 2-cycle diesel engine delivering 102 engine horsepower, with 12,475 pounds maximum drawbar pull.

Oliver Corp., Dept. C&E, 400 W. Madison St., Chicago 6, Ill. Circle No. 130 on Request Card.

#### European-made jack supports up to 9 tons

Newark Ladder & Bracket Co. has announced the availability in this country of Safety tubular-prop shoring jacks. Manufactured in France, these shoring jacks are said to support up to 9-ton loads, and to be easy to install and remove.

The steel-encased jack is integrated into the lower portion, fully protected spainst dirt, and may be greasepacked for still easier operation. There are no loose parts or washers to bend or get lost.

Newark Ladder & Bracket Co. Dept. C&E, Walnut and Central Aves., Clark, N. J. Circle No. 131 on t Card.



MER. 1961

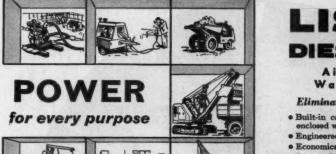
#### Power distribution center for tools, welding

A lightweight, self-contained 120/ 240-volt, ac, portable utility distribution center of 50-amp capacity is announced by the Leonard Electric Mfg. Co. The 30-pound unit reportedly can be set up by one man in minutes, and is easily transported in a car or pickup truck.

Designed for use wherever construction sites or field-test projects require temporary power, the compact load center contains six 15-amp, 120volt outlets for power tools, and one 20-amp, 2-pole, 240-volt outlet that can be used for welding. Overload and short-circuit protection is achieved with quick-lag bolt-in circuit breakers.



Leonard Electric Mfg. Co., Dept C&E, 3907 Perkins Ave., Cleveland 14, Ohio. Circle No. 37 on Request Card.





Write for data and prices

LISTER-BLACKSTONE, 42-32 21st Street, Long Island City 1, N. Y. Tel.: STillwell 6-8202

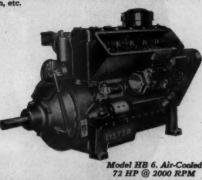
In Canada: CANADIAN LISTER-BLACKSTONE, Ltd. 1921 Eglinton Ave., E., Toronto 13, Ont.

# LISTER DIESEL ENGINES

Air-Cooled 31/2-72 HP Water-Cooled to 90 HP

#### Eliminate Winter Worries!

- Built-in cold starting for sub-zero temperatures; totally enclosed working parts. No "freeze-upe".
   Engineered to suit all types of applications.
- Economical operation with low fuel consumption.
- Dependable power for generating sets, pump, compressors, etc., in construction, oil fields, agriculture, mining, refrigeration, etc.



For more facts, use Request Card and circle No. 346



For more facts, use coupon or Request Card and circle He. 347



#### Mortar-placing rig is versatile unit

A new piston-type mortar-placing machine, the Mor-Flo Sandy, Model MF3, is announced by the Muller Machinery Co. The unit is capable of spraying all materials from as slow

The Muller Mor-Flo Sandy, Model MF3, is a portable mortar-placing machine that offers a variety of placing speeds.

as a fog-texture spray to as fast as 400 square yards per hour, 3/4 inch thick, according to the manufacturer.

Designed for easy portability, the Model MF3 weighs only 590 pounds and measures 29 inches wide.

Complete operator controls are at the nozzle, including an adjustable spray pattern control. The unit is powered by a Briggs & Stratton 9-hp engine.

Muller Machinery Co., P. O. Box 248, Dept. C&E, Metuchen, N. J. Circle No. 15 on Request Card.







### How to tie more re-bars per minute

Your crews can tie faster - and more safely, too - with Cal-Tie Wire in the handy belt-borne dispenser.

Designed to be worn on either the right or left-hand side, this lightweight combination (total weight approximately five pounds) frees both hands for productive labor. Tying is faster and more accurate. Less wire is thrown away as unused ends. Wire can't get tangled or kinked . . . won't cause falls or serious eye or facial injuries. The end result for you is greater efficiency and a lower perton cost for placing steel.

Why not try this cost-cutting combination and measure the difference? Cal-Tie Wire comes tightly coiled, 20 coils to the carton, and is stocked in 16 gage, low carbon, black annealed. Other sizes (14-20 gage) and finishes such as galvanized, are available upon request. Ask your CF&I salesman for complete details.

#### The Colorado Fuel and Iron Corporation

Denver - Oakland - New York Sales Offices in Key Cities

For more facts, use Request Card and circle No. 348



#### New, drop-forged scarifier shanks

Addition of a line of alloy-at drop-forged motor-grader scarr shanks has been announced by cyrus Blades, Inc.

Through the drop-forging proc ForgeTemp shanks and tips are pr duced with a dense fibrous m structure that imparts a high da of resistance to abrasion and im wear, according to the manufactu

The new ForgeTemp scar shanks are available to fit all r and models of motor graders.

Bucyrus Blades, Inc., Dept. C Bucyrus, Ohio. Circle No. 128 on B quest Card.

#### Self-propelled roller for turf, blacktop jobs

A new self-propelled, heavy-de roller nearly 2 feet wide is offered Ryan Landscaping Equipment of Weighing in excess of one-quar ton when filled with water. it pe vides a contact pressure of 23 pour per linear inch, and thus is said to effectively level and compact with single pass.

Positive-action chain drive prop the Rollaire at a good walking pas permitting coverage of 10,000 fe per hour. In addition to turf appl cation, the new unit is recommend by the manufacturer for blackte

Ryan Landscaping Equipment Co Dept. C&E, 871 Edgerton St., 8 Paul 1, Minn. Circle No. 53 on Re quest Card.

#### New backhoe bucket open at both ends

Standard hydraulic backhoes m be adapted for high-capacity excave ing with addition of a versatile buch

# STARTING SPRAY



•Starts diesel and gasoline engine (from the smallest to the largest) down to 65° F. below zero • Starts in seconds • Excellent in humid weather too . Millions of cans sold See your automotive jobber



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P.O. Box 1988 . Camden 1, N.J.

For more facts, circle No. 349 CONTRACTORS AND ENG The Kash bac

Product P

fered by Kas onen on bo ither directio all popular tra a backhoe, si holer, or sand The all-weld able in 12, 16, models, Capaci feet with the 1 cess of ½ ye Kash Produ

Auntington Be 125 on Request

#### New unit o of paving

A new, high

cutter, said to tor to cut over phalt paving pe unced by Al Products, Inc. The Roto-Cu thed to motor tors, rollers, and ment having hye of the unit feat steel construction Allied Steel

Offer diesel of excavato

e, Dept. C& eveland 5. Oh st Card.

The Hy-Dyna d the av el model of backhoe. The new mod and offe wy foundatio s, dipper, ar n the gasoline-p dacturer rep efits of the e mid to incl my, easy lity, sure tr ter, power shi e, power stee

The Hy-Dynan e Highway tie No. 2 on Re



The Kash backhoe bucket digs in ei-

offered by Kash Products, Inc.

Open on both ends for digging in either direction, the Kash bucket fits all popular tractor makes. It serves as a backhoe, shovel, mud pawl, bell holer, or sand bucket.

The all-welded steel bucket is available in 12, 16, 18, 24, 30, and 36-inch models. Capacities range from 4 cubic feet with the 12-inch bucket to in excess of ½ yard with the 36-inch model

Kash Products, Inc., Dept. C&E, Euntington Beach, Calif. Circle No. 125 on Request Card.

# New unit cuts 6,000 feet of paving per hour

A new, high-speed rotary asphalt cutter, said to enable a single operater to cut over 6,000 linear feet of asphalt paving per hour, has been announced by Allied Steel & Tractor Products, Inc.

The Roto-Cut can be easily attached to motor graders, wheel tractors, rollers, and other types of equipment having hydraulic down pressure, the manufacturer reports. The body of the unit features one-piece, alloystel construction.

Allied Steel & Tractor Products, Inc., Dept. C&E, 7835 Broadway, Greland 5, Ohio. Circle No. 57 on Remest Card.

# Offer diesel model

The Hy-Dynamic Co. has announced the availability of a new disel model of the Dynahoe loadertestor-backhoe.

The new model features a 67-hp magne and offers the same extratary foundation frame, buckets, toms, dipper, and components found on the gasoline-powered Dynahoe, the manufacturer reports.

Benefits of the new diesel model are aid to include maximum fuel account, easy operation, excellent visibility, sure traction, torque conreter, power shift forward and rereter, power steering, and planetary

The Hy-Dynamic Co., Dept. C&E, Sakie Highway, Lake Bluff, Ill. Cale No. 2 on Request Card.

mits steering.

For more facts, use Request Card and Circle No. 350

# Short-shaft electric, air-powered vibrators

Six new air and electric-powered concrete vibrators designed with short shafts for maximum convenience in prestressed and precast-concrete work are made by Remington Arms Co.

All models are equipped with 1½ × 12-inch hardened steel heads and are made to fit more easily between reinforcing bars, into thin cross sections, and in other forms where large-diameter heads cannot be used. Electric models 1 EVH-4 and 1 EVH-7 have 1-hp motors; models 2 EVH-4 and 2

EVH-7 have 1½ horsepower; and air models 2 PVH-4 and 2 PVH-7, 1¾ hp. Remington Arms Co., Inc., Dept.

Remington Arms Co., Inc., Dept. C&E, 939 Barnum Ave., Bridgeport, Conn. Circle No. 127 on Request Card.

# New waterstop features easy application

W. R. Meadows, Inc., offers a new waterstop, the Nail-on DUO PVC, said to eliminate the need for splitting the form during installation.

The new waterstop is extruded with a special nailing tab, prepunched on 6-inch centers, that is nailed to the



concrete form with special doubleheaded nails. This not only anchors the waterstop to the form but also helps to hold the waterstop in correct position during placing of concrete.

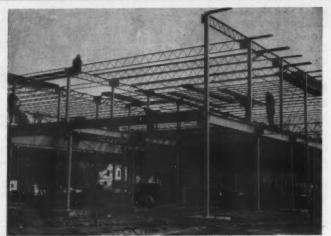
W. R. Meadows, Inc., Dept. C&E, 7 Kimball St., Eigin, Ill. Circle No. 51 on Request Card.



FOR MORE INFORMATION, phone DUpont 2-1151, Marion, Ohio,

MARION POWER SHOVEL COMPANY • Marion, Ohio

see your Marion Distributor or wire or write



This 55-classroom school at Elmira, N. Y., represents the first use of National Tube's new hot-rolled structural tubing. The vertical columns are 5-inch-square tubing.

#### Hollow steel tubing as structural member

Square and rectangular hollow structural tubing is now available from U. S. Steel's National Tube Division in a wide range of sizes and at prices that compare favorably with prices of other structural members, according to the company. The new structurals are rolled to ASTM and AISC specifications, with specific applications of the engineer, architect, and contractor in mind.

Square tubing is available in the range from 1 × 1 inch through 8 × 8 inches. Rectangles are avail from 3 × 2 inches through 6x4 inches, and perimeters through inches. The tubing is stocked lengths of 36 to 42 feet and is available in cut lengths or multip

The new members can be subject to most of the usual fabricating erations. Ductility is said to be and the structurals are reported introduce no bend, flatten, cut, punch, flare, flange easily. They can be welded protory conc commonly employed techniques.

U. S. Steel Corp., National Thetary mixer to i Division, Dept. C&E, 525 William for the ready-m Penn Place, Pittsburgh 30, Pa. Companyanced by t No. 21 on Request Card.

#### Introduce new aluminum 4-yard state of th reinforcing-bar chair

The Neptune Mfg. Corp. has in per cent over tri troduced a new, improved aluminatory smaller rotar chair for supporting and centeric restures of the reinforcing bar and conduit in the include a sian crete forms. The new chair is said b that provides allow up to 20 per cent savings in brapid discharge stallation labor because of its of the mixer; the plified, nontangling, "snap-apart ever achieved in construction, its light weight, acrossy mixer, du plow-shaped ble

Because the Neptune chairs an maintenance. made of aluminum, they prevent ru. Chain Belt Co. or other stains on the finished on Greenfield Ave., crete surface, the company report trele No. 7 on 1 In addition, the new chairs are mis to easily support, without bending New utility-sagging, the weight of workmen wall ins 60-gpm ing on the reinforcing steel.

Neptune Mfg. Corp., Dept. CH. 3250 E. Olympic Blvd., Los Angel 23. Calif. Circle No. 11 on Reg Card bound into this issue.

New Multi-Position, Power-Saving FLUID CONTR



Armco Construction Department crew installs Armco MULTI-PLATE® Pipe at Frenchmen's Dam, part of California's Feather River Power Project.

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For the past 30 years this service has been available to contractors to assure fast and efficient installation, save time and money. It also permits contractors' crews to go ahead on other projects-helps eliminate worry about impending deadlines.

ARMCO Drainage & Metal Products

This service includes installation of

Armco metal drainage structures, utility conduits for sewers, retaining walls or guardrail. Armco Construction Department also specializes in jacking, boring or tunneling under streets, highways or railroads.

Write us for catalog describing this construction service. Armco Drainage & Metal Products, Inc., Subsidiary of Armco Steel Corporation, 7001 Curtis Street, Middletown, Ohio.



#### HUSCO HYDRAULIC MULTI-PLUNGER VALVES

HUSCO Valves give you up to FOU Control Positions — Raise, Lower, fis and Neutral, with or without Detest for unusual advantages in versatility performance. Available to control up SIX cylinders, single or double atti-with Power-Saving Relief Valva. O m 3 to 185 G.P.M. odels, with unlimite your specific need.

West Coast Represent MAN PACIFIC CO., Los IOBBS AIR-DRAULIC CO. For more facts, circle No. 351

CONTRACTORS AND EN

The Rex 4-yard d to cut m

The addition chinery section The manufact

low double batch thereby cutting

The new Texat y pump is recor ng trenches, cl other jobs at co adles fluids c materials inch in diameter.

This new 70-po

d. double-di no packing and it in sections, can be serviced " wing the suction ding to the The unit provi d discharge th a 2-inch Tersteam Corp.

on 11, Texa

Dept. C&



The Rex 4-yard rotary mixer is reparted to cut mixing cycles by onethird because it allows double batching of transit mixers.

# Introduce new 4-yard

The addition of a Rex 4-yard rotary mixer to its line of equipment in for the ready-mix industry has been announced by the construction machinery section of Chain Belt Co.

The manufacturer claims that the 4-yard size of the new mixer will allow double batching of truck mixers, thereby cutting mixing cycles 33 1/3 per cent over triple batching required by smaller rotary mixers.

Peatures of the new mixer are said to include a slant-slide bottom door that provides controlled flow with rapid discharge over the full width of the mixer; the fastest mixing cycle ever achieved in a high-production rotary mixer, due to double-decked, plow-shaped blades; and ease of the internance.

chain Belt Co., Dept. C&E, 4701 W.
Creenfield Ave., Milwaukee 1, Wis.
Tele No. 7 on Request Card.

#### New utility-pump series is 60-gpm discharge

The new Texsteam Series 9000 utility pump is recommended for emptying trenches, cleaning sumps, and other jobs at construction sites. It handles fluids containing abrasives, direct materials, or solids up to ¼ inch in diameter.



The Texasteam Series 9000 utility pump is designed for a variety of jobs at construction sites.

This new 70-pound, air or gas-opmied, double-diaphragm pump has no packing and requires no priming. Bull in sections, the Texsteam pump on he serviced "in-line," without removing the suction or discharge lines, according to the manufacturer.

The unit provides accurately conbolled discharge from 1 to 60 gpm through a 2-inch discharge outlet.

Testeam Corp., Pump & Valve Diim, Dept. C&E, 320 Hughes St., Conton 11, Texas. Circle No. 59.

er more facts, use Request Card and circle No. 353

#### New asphalt finisher has greater capacity

The Cutler Engineering Co. announces a new Model 84 Repayer for reprocessing and finishing of asphalt navements

The working width of the Repaver has been increased to 84 inches. A new streamlined design gives the operator complete visual control at all times. New automotive power steering, using an automotive steering wheel, gives the operator precise control over the entire operation, the

manufacturer reports.

A new asphalt mat can be laid at a rate of 50 pounds per square yard with the new 84-inch-wide Repaver finisher. Production is from 500 to 600 square yards per hour at a reported substantial saving over conventional maintenance methods.

Cutler Engineering Co., Dept. C&E, 5435 W. 63rd St., Chicago 38, III. Circle No. 29 on Request Card that is bound into this issue.



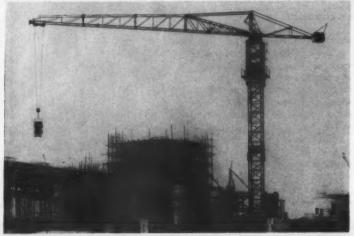
The new Cutler Repayer can apply a finish mat to asphalt payement at 500 to 600 square yards per hour.



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PERFECT CIRCLE
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HAGERSTOWN, INDIANA • DON MILLS, ONTARIO, CANADA

Circle, Hagerstown, Indiana.



The Record tower crane, a French-built rig now available in this country, operates either as a stationary unit, on tracks, or as a climbing crane working inside

#### Offer line of imported tower/climbing cranes

The Record line of tower cranes, said to represent the most advanced design in these material-handling giants, is now being offered in this country by Briere (U. S. A.) Corp., agent for the French manufacturer. Models ranging in capacity to 15 tons

Versatility is reported to be an outstanding feature of these tower cranes: all models can be operated either on tracks outside the building,

in a stationary position inside or o side the building, or as a cli crane within the building.

Other features of the electric operated rigs are dc drive with matic speed shifts, three safety vices, and telescoping, self-ere masts. The mast is made up of he 20-foot sections. The cranes may operated by tower cab or remote con

According to the company, the Record cranes are being built to American specifications so as to a particular building needs here.

Briere (U. S. A.) Corp., Dept. CAR 55 W. 42nd St., New York 36, N. Y. Circle No. 194 on Request Card.

#### Versatile unit tests construction materials

The new Forney Model LT-800 said to be the first universal tests machine designed specifically for the to the silo, and s construction-materials laboratory, is between the el standard-equipped for testing rein and the aggregation forcing bars from Nos. 2 to 11 b clusive in tension and  $6 \times 12$ -inc cylinders in compression, the mann-Expand var facturer reports.

The standard model is a dual-range, console-type machine with a range, console-type machine with added to its line maximum capacity of 250,000 pounds. Corp. now offer A heavier model, the LT-900, has a of "related design capacity of 400,000 pounds. A wide cording to an analysis." range of standard accessories adapt the machine for testing cubes an masonry units in compression, brick in compression, beams in transver loading, and weld specimens in ben and tension.

Forney's, Inc., Tester Divisi Dept. C&E, 209 Elm St., New Castl Pa. Circle No. 248 on Request Ca

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Brooms filled with fibers of P. Hickory-Bass-Spring Steel Wire DuPonts Nylon.

SAVE MONEY—if you fill you own order core only without filler.

FILLING any make, size of type. New slate pairing hubs-shaft-cable. WE SHIP WORLDWIDE-IMMEDIATELY Road Builders — it's sensational ROAD DRAG LEVELERS BROOMS PECKERWOOD

For even distribution of materia six inches wide — lengths to 12 fee No frame required.

350 FOOT STOCK LENGTHS . 6', 8', 10' er 12'

COCOA ROLLER MATS - STREET
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CONTRACTORS AND ENG

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Two new sil

Two new bul with filler dust, ave been anno ton & Berner, especially design

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With three ompany. The n odels extend th range from 14,

The TH Series city will accor and dual-wheel

re's the mos laves time, la ly contractor Acker Aml

tile, concrete does the job an a hammer



The Model MH horizontal bulk filler silo, ready for over-the-road travel.

#### Two new silo units for batching plants

Two new bulk filler units for use with filler dust, fly ash, cement, etc., have been announced by Hetherington & Berner, Inc. The units are especially designed for mobility, the manufacturer reports.

The MV vertical model, for use with tower-type batching plants, incorporates a built-in elevator, a surge hopper at the elevator head section for surplus return flow of material to the silo, and a chute for connection between the elevator head section and the aggregate weigh batcher of

the mixing tower.

The MH horizontal model, for use with mobile, low-silhouette batching plants, incorporates the air-slide principle, with built-in distribution control of material as it is charged from truck transports. The unit is complete with air-compressor unit and facility for transferring material direct to the aggregate weigh batcher.

Hetherington & Berner, Inc., Dept. C&E, 701 Kentucky Ave., Indianapolis, Ind. Circle No. 27 on Request

#### Expand varied line of trailer axles

With three new series of axles added to its line, Rockwell-Standard Corp. now offers a complete family "related design" trailer axles, acording to an announcement by the mpany. The new TH, TR, and TU models extend the R-W axle capacity range from 14,000 to 30,000-pound

ıd

The TH Series of 14,000-pound capacity will accommodate both single and dual-wheel applications. Report-

edly light in weight and yet rugged in construction, it is said to permit maximum payloads for the efficient operation of such trailer types as lowbeds. The new TR Series provides for loads up to 22,500-pound capacity, while the new TU Series is capable of handling 30,000-pound-capacity loads.

Rockwell-Standard Corp., Transmission and Axle Division, Dept. C&E, Detroit 32, Mich. Circle No. 40 on Request Card.

#### Announce new portable pneumatic sump pump

A self-contained, portable, pneumatic sump pump is announced by Schramm, Inc. The new pump is available in two models, the SP-25, of iron construction, and the SPB-25, of bronze construction.

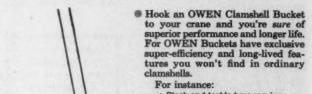
Heavy-duty thrust and radial bearings support the 2-part, nonclogging impeller, which is mounted on a stainless-steel shaft. Bearings are double-sealed to protect them and the air motor from damage by dirt.

The pump is 19% inches high. Pump speeds vary between 3,200 and 3,600 rpm, depending upon the head against which it is pumping and the



supplied air pressure.

Schramm, Inc., Dept. C&E, 900 E. Virginia Ave., West Chester, Pa. Circle No. 119 on Request Card.



- Block and tackle type reeving
   One-piece head construction
   Recessed lips

- Single main shaft
   Riveted bowl assembly

For over half a century OWEN has een building clamshell buckets tailored to meet the requirements of "men who move the earth the world

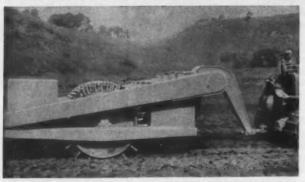
So team your crane to the bucket with the BIG BITE that's JUST RIGHT for every job!





BREAKWATER AVENUE . CLEVELAND 2, OHIO





The new Southwest MB-75 multiple-box roller, here equipped with sheepsfoot drums, can also use plain steel drums.

#### Versatile compactor rated at 100 tons

Increased versatility is the feature of the new Southwest Model MB-75 multiple-box roller, according to an announcement by Yuba Consolidated Industries. The rig is especially designed for the newer-model Caterpillar tractors, and has a rated capacity of 50 to 100 tons.

Pneumatic tires, sheepsfoot drums, or plain steel drums can be used interchangeably on the new roller. With a simple changeover, the unit can be

adapted to meet any compacting re quirement, the company claims. Th machine has detachable, interchange able draft beams available as option equipment. Rolling width with a of the three adaptations repres an increase of about 12 inches ow earlier models.

Yuba Consolidated Industries, Inc. Dept. C&E, 1 Bush St., San Francisc 4, Calif. Circle No. 22 on Reque Card bound into this issue.

#### High-lift dozer blade for crawler tractors

A new high-lifting, all-weld straight dozer blade, which lifts to 4 inches and drops to 11 inches, h been announced by the Internation Harvester Co. for its T-340 and To 340 crawler tractors.

A 3½ × 12-inch hydraulic cylin with plumbing that can be installed either over or under the tracks suit operating conditions, makes i possible to utilize the full power an weight of the crawler, the compa reports. The 1/2 × 6-inch cutting ed is reversible.

International Harvester Co., Dept C&E, 180 N. Michigan Ave., Chie 1, Ill. Circle No. 120 on Request Card

#### Offer new automatic rotary asphalt cutter

A new automatic rotary asph cutter has been introduced by the Meredith Paving Corp.

Designed for attachment to grader within 30 seconds, and adap able for quick attachment to oth construction machinery, the Zorn a phalt cutter is capable of cutting a phalt at a rate of 5,000 linear for per hour, according to Meredith.

Meredith Paving Corp., Dept. Ca Union Landing Road, Riverton, N. READE Circle No. 121 on Request Card.



CONTRACTORS AND ENGI







For more facts, use Request Card and circle No. 360

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# **Coming Next Month**

# CONTRACTORS and ENGINEERS

MODERN CONSTRUCTION

In the October issue:

Spotlight on prestressed concrete. Field reports on prestress jobs around the country, including one on a box-girder bridge that is being cast in place and post-tensioned. Galvanized wires of the prestressing strands are harped up and down through diaphragms and left exposed inside the girders.

Annual focus on winter work, with reports on how contractors keep operations going-and profits coming in-during the cold months. Among the stories: One on a contractor who worked with the cold weather to move dirt in temperatures down to 10 below zero for an interstate highway job.

(over)

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☐ Equip. Distrib. or Supplier

Government Dept.

Consulting Engineer

Other.

# Coming Next Month

# CONTRACTORS and ENGINEERS

MAGAZINE OF MODERN CONSTRUCTION

In the October issue (Cont.):

Special section on maintenance, with tips on wintertime overhauling and conditioning of equipment, as well as on servicing of rigs working through the winter months. Also in this section will be a listing of up-to-date literature on equipment maintenance.

The regular C&E departments—including Surveying Washington, which brings you the latest developments from the nation's capital that will have an effect on the construction industry, and Avoid Legal Pitfalls, which outlines recent court rulings in disputes involving contractors.

#### READER REQUEST CARD

SEPTEMBER '6

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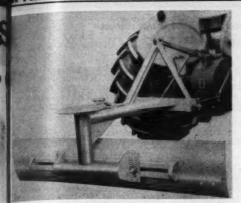
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TEMBER, 1961



The Parsons de luxe Model B-150 rear utility blade.



'Man, dig that crazy

#### Two new rear blades for utility tractors

Two new rear-blade attachments for utility tractors have been announced by the Parsons Co.

The B-101 economy model has a eplaceable cutting edge and nine ngle positions. The moldboard, 6 et long and 13 inches high, is made of blued steel; the frame is of 3-inchthick flat steel combined with doubletrength pipe section; and the cutting edge is %-inch heat-treated steel.

The B-150 de luxe model is also versible and features nine angle sitions, replaceable cutting edge, ued-steel moldboard, and doublerength, pipe-steel frame. The B-150 an be tilted 12 degrees up or down, and offset 20 inches to either side.

Parsons Co., division of Koehring Co., Dept. C&E, P. O. Box 431, Newton, Iowa. Circle No. 4 on Request Card.

#### Armco Drainage combines operations into 3 areas

Armco Drainage & Metal Products. Inc., a subsidiary of Armco Steel Corp., Middletown, Ohio, will conlidate its sales and production manement operations-now in 10 divins-into three major areas.

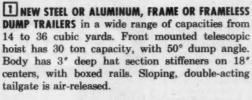
James E. Kunkler will be general mager of the Atlantic area with eadquarters at Middletown, Ohio; Alvin J. Mistler will manage the Central area from Topeka, Kans.; and William W. Mains will head the Westm area from Denver, Colo.

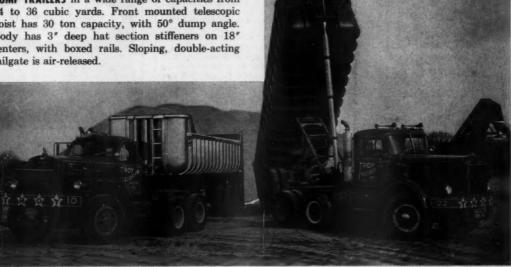
The company is planning to comne steel-building operations in the fall. Production will be gradually hifted from the Trine Street unit in iddletown to the company's larger ant at Washington Court House,

#### form-Crete names ales engineer

Kenneth A. Bath has been apted a sales engineer by the Form-Crete (steel forms) section of FMC orp., Riverside, Calif.

He will cover Form-Crete's northtern sales territory including agton, Oregon, and the northn half of California. He was formcriy a sales engineer for the Wailes cast Corp., Sun Valley, Calif.





# Rugged New Fruehauf Dumps Handle Your CONSTRUCTION JOBS BETTER!



2 MEDIUM-DUTY "WORKHORSE" STEEL PLATFORM-26% increase in load-to-weight ratio. Extra weight savings permit gross capacity payloads to 45,000 pounds. Choice of side rail and pocket options. Wide choice of lengths and suspensions.



3 HEAVY-DUTY "WORKHORSE" STEEL PLATFORM-Rugged bridge-type construction for payloads up to 50,000 pounds. Pine, composite, or all-aluminum floors available. Wide choice of lengths and suspensions.



4 NEW HEAVY-DUTY ALUMINUM PLATFORM-800 pounds lighter than a comparable steel platform! Designed to give operators maximum payload per trip with weight-saving aluminum. Removable interlocking side panels are available in 84", 72" and 48" heights. Complete range of length and suspension options.



"ENGINEERED TRANSPORTATION" The Key to Transportation Savings

FRUEHAUF TRAILER COMPANY

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2

3

4

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# **Product Literature**

To obtain free copies of any of the literature described in this section, circle the designated number on the Request Card.

Tractor shovel—Specification bulletin on the new Trojan Model 254 tractor shovel. Lists standard and optional equipment; illustrated with dimensional drawing. Form No. 2543.

Write to The Yale & Towne Mfg. Co., Trojan Division, Dept. C&E, Main

St., Batavia, N. Y.

Torque converter-Booklet outlining through pictures, graphs, car-toons, and sketches just what torque is and how a torque converter works. Also discusses the advantages of a single-stage torque converter. Bul-

write to The Eimco Corp., Dept. C&E, 634 S. Fourth St. West, Salt Lake City, Utah. No. 84.



for heavy duty trucks and tractors, specify one of the eight

### **Fuller '92 Series**

3-Speed **Auxiliary Transmissions** 

available from all truck manufacturers upon specification. Top-mounted power take-off optional.

#### '92 SERIES (Heavy-Duty) RATIOS

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MODEL	High	Inter- mediate	Low
3-A-92	.74	1.00	2.09
3-B-92	.84	1.00	1.24
3-C-92	.75	1.00	2.64
3-D-92	.75	1.00	1.24
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ance table, and sketches of typical plications. Bulletin No. 201.

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(Continued from preceding page)

welders. Typical process applications are illustrated. Construction details and mechanical features of the weld-ing equipment also listed. Bulletin No. 5300.1.

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Tool Division, Dept. C&E, 491 N.
Lexington Ave., Pittsburgh 8, Pa.
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Core drills, bits—Literature on the complete Clipper line of core drills and diamond core bits. Covers elec-tric, gasoline, and air-powered models of core-drilling accessories. Price in-

Write to Clipper Mfg. Co., Dept. C&E, P. O. Box 453, Kansas City 8, Mo. No. 74.

Roof trusses—Comprehensive 16-page design booklet on the new Teco plate-type roof-truss series. Contains complete design details for spans ranging from 16 to 32 feet, and slopes

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### Management

# **Job factors**equipment and labor

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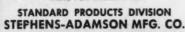
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The first importance to a contractor of periodically gaging the efficiency of his organization is to insure that he remains in the profit column. He must be prepared to meet the requirements of an awarding agency, and nearly every one runs an annual check on contractors' respective abilities-mainly as a means of avoiding trouble.

Last month we considered management factors governing cost control that apply particularly to an organization, whether or not there is a job under way. They are: job preplanning and work-methods selection; selection, care, and repair of equipment; estimating and cost control; scheduling and expediting; communications and supervision.

Other management factors that need to be considered are those that have to do with the bidding of work or with work under way-job factors having to do with equipment and

Among these factors are:

- 1. Machine selection and proper job application
- 2. Operators' efficiency
- 3. Equipment condition; repair and maintenance
- 4. Supervision, work methods, placing equipment
- 5. Volume/area; long or shorttime job
- 6. Surface site conditions (drainage, maneuverability, etc.)
- 7. Weather conditions
- 8. Specification requirements (drastic, limiting)
- 9. Economics of the times (poor, fair, average, excellent)

10. Local job handicaps, delays

Two of the main management factors—the selection of equipment and work-methods selection—can be used to emphasize important points.

The national office of the Associated General Contractors has received complaints from members that several equipment manufacturers have been making quantity takeoff and production estimates on many larger projects and then issuing them to prospective bidders through their distributors.

At the 42nd annual meeting of the Associated Equipment Distributors, AGC president Miller stated that he had not found a single AGC member who approved this procedure. Miller advised those attending the meeting: "Leave the estimating to us! If a customer (contractor) needs you to estimate his ability to do things, then he is a candidate for your delinquent account list for bankruptcy. One way to lose a customer is to advise him that he can do a job at a certain price, then have him find out it actually costs more"

It was not Miller's conclusion that equipment manufacturers should not work with contractors in supplying production figures. Contrary to this. he suggested that distributors "follow each sale into the field and learn first hand what the product would produce when subjected to the many varied conditions it will encounter on the

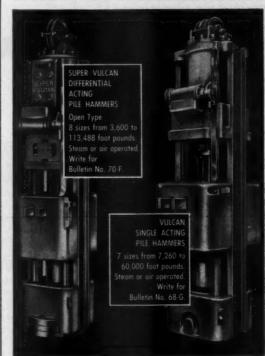
But certainly a contractor who bids

on a takeoff and production estimate supplied by an equipment distributor cannot be called efficient. The distributor does not know enough about the contractor's organization to anply any conversion factor to his cost and production figures. He is also anticipating conditions over which he has no control.

Any production estimate, either by the distributor or the contractor. would have to be considered on the basis of the ten job factors listed.

In conclusion, Miller said:

"In closing it cannot be denied that the respective businesses of construction and construction equipment are in serious trouble. But the cause is far from hopeless, for I am completely convinced that our respective (Continued on next page)





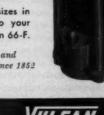
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a major problem to a major profit. Let us make suggestions on your SPECIAL PROBLEMS.

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Concrete production at the 20,000-square-mile Minuteman missile-base project in Montana proceeds swiftly as a semitrailer truck (left) dumps cement and aggregate onto a conveyor that delivers to a special truck-mounted T. L. Smith turbine mixer. Western Concrete, Denver, is subcontractor on the job.



Stockpiling rocky material for Nelson & Sloan Co., transit-mix product Otay, Calif., is handled by this Gar Wood double hopper trailer, one of such units used by the company. As the rigs descend from the top of the they discharge their 25½-ton loads in less than 8 seconds.

Leading stumps Monticello and Thomas Smith loading, cleaning

rigid frame farm on for under \$1 pe 10's with gussets of

(Continued from preceding page)

business futures will be as we will them."

Nothing could be more true. And the first requisite is that contractors must take time out long enough to think and talk management factors as they influence the business, to find out why the industry is in serious trouble, and to avoid it in their own organizations.

Important on the list of management job factors is supervision. How good are your job supervisors? What are you doing to make them more efficient? Should you make a search for greater talent or make the most out of those workers you have? Are they trained in determining proper work methods, including the placement and operation of equipment in order to get the most out of it? How well do they know what work under their direction should cost?

All these factors must also be considered for each individual work classification. The organization may be tops in excavation but totally inadequate in form work or some other classification. Is it more economical to perform the work yourself or to sublet it? The latter is the answer if an organization is not properly set up or experienced on a particular class of work. Hence the necessity for knowing one's own costs accurately.

Other prebid job factors involve the size and duration of the job, the site conditions in detail, specification requirements, and the forecasting of weather conditions. Site examinations that are largely inadequate result in lowered production from men and machines.

When management functions are broken into the various divisions—estimating, bidding, contracts, office engineering, general and departmental organization, purchasing, planning and production, clerical (including cost control and analysis), labor relations, safety, financial and executive management—we find that there are reliable procedures for each one. There are safe rules to follow.

An analysis of contractor failures in all categories has shown that the trouble is in violation of these simple rules—in ignoring them or taking short cuts.

THE END

# New from plywood researchsim that helps you build tess

The RIGID FRAME, newest building system from Douglas Fir Plywood Association research, is the simplest, most economical way to enclose space. Costs well below \$1 per sq. ft. have been reported for the basic building shell. The system is fast, too. Each of the 52x100-ft. warehouses below took only 11 days to complete.

Basic unit is a load-bearing arch made of four lumber members, rigidly connected by nailed plywood gusset plates. The system owes its strength and economy to these plywood gussets. They do the job as well as, or better than, costly metal connectors, and insure an absolutely rigid connection. Series of the rigid frames—up to almost any number—are sheathed and tied together structurally by Exterior (waterproof) plywood walls and roof.

The rigid frame system requires little in time, materials and capital outlay. Frames are easy to assemble, off-site or on, and are quickly set in place. Construction grade West Coast lumber and DFPA quality plywood are used. The system is ideal for pre-cutting or pre-assembly. It takes fewer pieces and less work than trusses, and more usable space.

And it's versatile. DFPA engineers have debuilding plans for spans of 32', 40' and 52'. Seven dred variations in the basic design can be engifrom research information available from DFPA tions include different leg heights, spans, frame aproof loads and wall treatments.

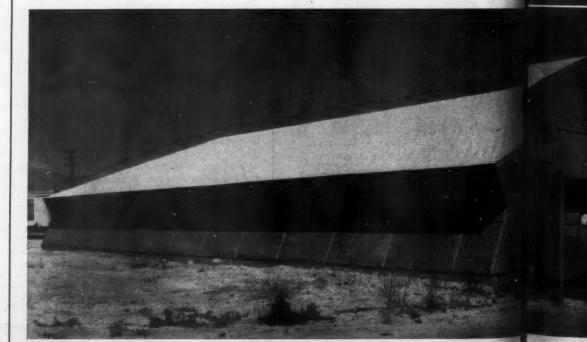
The rigid frame design originated from research to develop a low-cost farm building. But the lospan makes it extremely logical for warehouses, commercial and public buildings, and even reconstruction. For more information on the rigid system, or for construction plans, write (USA)

#### DOUGLAS FIR PLYWOOD ASSOCIATION

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Leading stumps uprooted as part of a job widening 10 miles of U. S. 19 between Monticello and Capps, Fla., is an International Drott TD-9 Four-in-One owned by Thomas Smith Construction Co., of Quincy. The rig handles stumping, material loading, cleaning up right-of-way, and undercutting obstacles.



Riggers on this barge prepare two Manitowoc cranes for shipment from Manitowoc, Wis., to the Captain Anthony Meldahl Dam site on the Ohio River at Cincinnati, where they will team up with another pair of Manitowocs to install and remove 7,000 tons of sheet-pile cofferdams in each of the project's 3 major stages.

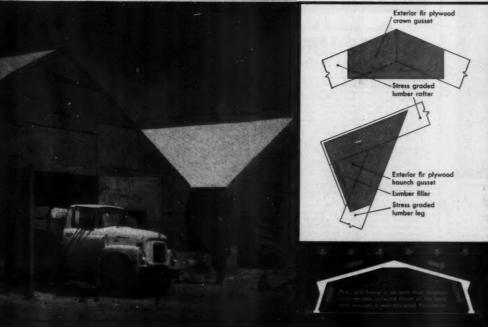
# simple construction system ss than \$1 per sq. ft.

rigid frame farm building below, 40 x 225', was built in Western Washon for under \$1 per sq. ft. Frames, which were built in a jig on the site, are 0's with gussets of %" Exterior C-C plywood. Siding and roof sheathing are Exterior plywood. Openings were left in siding to admit light and air.





On this rigid frame warehouse, Exterior plywood siding was unpainted and asphalt shingles went over the plywood roof sheathing. In some applications, sides may be straight instead of sloping in. To design these and other variations, refer to DFPA's basic design data on the rigid frame.



For more facts, use Request Card and circle No. 373

#### distributor doings

#### New A-C dealer

Allis-Chalmers Mfg. Co., Milwaukee, Wis., has named the E. F. Craven Co., 515 S. Eugene St., Greensboro, N. C., engine dealer for 19 counties in the western part of the state. The dealer will sell and service engine and power units, engine-driven electric generating sets, and products for the marine trade. It has branches in Asheville and Charlotte.

#### **Buffalo-Springfield** names distributor

The Buffalo-Springfield Co., Springfield, Ohio, a division of Koehring Co., has named Ruffridge-Johnson Equipment Co., 3024 Fourth St. S. E., Minneapolis, a distributor for Minnesota.

The dealer will handle sales and service on the complete line of Buffalo-Springfield compaction equipment, including 7 and 9-wheel pneumatic-tire rollers, 2 and 3-axle tandem rollers, 3-wheel rollers, and the 4-wheel Kompactor.

#### Dallas firm represents Wheel Trueing line

The Industrial Sales Division of Continental-Emsco Co., Dallas, Texas, has concluded an agreement to represent the products of the Wheel Trueing Tool Co., Detroit, Mich.

Wheel Trueing's line of industrial diamonds, diamond tools, and diamond dressing devices will be represented by the Dallas firm on an exclusive basis in the greater Houston, Texas, area and in all of south Texas.

# Meredith Paving

The Meredith Paving Corp., Riverton, N. J., has appointed the following dealers: Blackwood Hodge, Montreal, Canada; Clark-Wilcox Co., Boston, Mass.; Comad, Inc., Little Ferry, N. J., Baltimore, Md., Salisbury, Md., and Washington, D. C.; Daw & Co., Buffalo, N. Y.; Dravo-Doyle Co., Pittsburgh, Pa.; J. C. Georg



More than 100,000 yards of earth have been removed by this Galion Grade-O-Matic Model T-700 motor grader during construction of 6.8 miles of road at the Myakka River State Park northeast of Fort Myers, Fla. The rig works a 10-hour day for Alonzo Cathron Co., Islamorada, Fla.



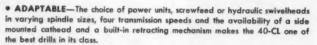
d out from the sides of an extinct volcano by this H-30 Payloader. The rig, which has an operating capacity of 3,000 owned by Foster Bros., Show Low, Ariz. Foster supplies fill for struction purposes in that area.

Concrete is be concrete arous

40-CL

THE BEST MACHINE FOR DRILLING TO MODERATE DEPTHS

- STABLE—The wider, longer skids and sturdy steel frame are ideal for rugged, hilly terrain.
- DEPENDABLE—The heavy-duty wireline hoist, together with a rugged power unit, offers you both the hoisting and rotational power you need.



- MOBILE—The 40-CL has a built-in set of sheaves to facilitate movement under its own power. In addition, a low-bed trailer is available, which also permits use of the rig directly from the trailer.
- HIGHEST QUALITY—Careful machining and time-tested inspection methods assure you of a long, trouble-free life. Write for Bulletin 185-2.

#### SPRAGUE & HENWOOD, Inc. SCRANTON 2, PA.

MEMBER OF: DIAMOND CORE DRILL MANUFACTURERS ASSOC.

lew York • Philadelphia • Nashville • Pittsburgh • Salt Lake City • Tucson Export Division: Sprague & Henwood International Corporation, 11 W. 42nd St., New York, N. Y.

For more facts, use Request Card and circle No. 374



### distributor doings

(Continued from preceding page)

Construction Equipment, Inc., Syracuse and Schenectady, N. Y.; George Malvese & Co., Inc., Hicksville, L. I., N. Y. and New York City; Hill Martin & Co., Barre, Vt.; Service Supply Corp., Philadelphia and Lancaster, Pa.; and Tyler Equipment Corp., East Longmeadow, Mass., and Wallingford,

Meredith Paving manufactures and sells the Zorn asphalt cutter.

#### Three new distributors named by Yale & Towne

Three new distributors have been appointed by the Yale & Towne Mfg. Co., New York, N. Y., for its Trojan tractor-shovel line.

Western Road Machinery Co., 2300 S. Main St., Salt Lake City, Utah, will handle sales and service on Trojan equipment in Utah, the southern

### PENGO AUGERS

Save you money 4 ways



BORE FASTER...put real "teels in earth drilling, save wear and las on your diggers.

STAY ON THE JOB LON ...all wearing parts replaced the field; no down-time for welding.

COST FAR LESS TO MAINTA ...reversible teeth cost only a each, pilot bit only \$8.00. Parts terchangeable on all PENGO app you are using...less inventory

A SIZE AND TYPE FOR EYER BORING JOB... Augers and brin heads (for welding to your press auger) available for every make a machine from post hole diggers i largest heavy-duty earth drills. Whi



the most satisfactory of struction rope available to

- \* GREAT STRENGTH (8,200 lbs. for 34" diameter)
- \* LIGHT WEIGHT (11 lbs. per 100 ft. 34" diameter
- \* HANDLES AND SPLICES LIKE MANILA in any climate or weather
- \* WATERPROOF (even salt water); can't mildew or rot. Excellent dielectric properties

ENGO-Prope is a synthetic rope of sponstruction available in all popular ders from  $\frac{1}{2}$ " regular construction izes smaller than  $\frac{1}{2}$ ". Write for specific systems of the system of the systems of the systems



facts, circle No. 377

CONTRACTORS AND E



Fibre-Metal's Quality

for WARMTH & COMFORT





ather conditions now, rain!). Extra ck. NO METAL

PARTS! Ideal for use with electrical safety hats and caps. Model FLP-E (Small, large and extralarge sizes). Same as FLN-E but with heavy gray outer flannel.



For more facts, use Request Card and circle No. 376



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NAME. COMPANY. CITY ZONE\_\_\_STATE\_



Monmouth Engine Bearings CLEVITE SERVICE

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INSLEY MANUF P.O. Box 187 . Indi

ere facts.

R, 1961



Concrete is being placed for a thin-shell barrel arch of the Providence, R. I., Post Office. To ease the flow of concrete around reinforcing steel and provide freeze-thaw durability, Darex AEA was added to the mix.



A steady 25-second work cycle is maintained on a flood-control project in Anaheim, Calif., by this 2½-yard P&H dragline stockpiling from canal excavation. The rig, equipped with Hendrix perforated bucket and 60-foot boom, handles an average of 1,500 yards per 8-hour work day for Norco Construction Co., Artesia, Calif., which is currently doing this part of the job.





ROUND-BUCKETS

Grout-tight gates



ROCKER DUMP





FLOOR HOPPERS

npact-fast, easy-rating gate-han-

For dependability, for durability, count on Insley's many years of experience in manufacturing concrete equipment. See your Insley dealer or write direct to

INSLEY MANUFACTURING CORP. P.O. Box 167 . Indianapolis 6, Indiana

For more facts, circle No. 378

R, 1961

part of Idaho, and in four counties of Wyoming. The dealer has branches at 3320 Western Ave., Boise, Idaho, and 590 W. 19th St., Idaho Falls, Idaho.

Bardale Equipment Co., 2646 Creve Coeur Drive, St. Louis, Mo., will cover eastern Missouri and four coun-

Mingolla Machinery Co., Concord Industrial Park, Concord, N. H., is Trojan dealer for New Hampshire.

#### **New Parsons dealers**

The Parsons Co., division of Koehring Co., Newton, Iowa, has appointed three new dealers for its line of Trenchliners, including small machines for utility trenches to large trenchers for cross-country pipeline

Capitol Road Machinery Co., 929 W. Third Ave., Columbus, Ohio, will handle sales and service on Parsons equipment in the southern two-thirds of Ohio; John C. Louis Co., Inc., 1805 Cherry Hill Road, Baltimore, Md., has (Continued on next page)



light weight Ten inch saw blade easily flush-cuts and trims toughest brush, under-growth and small trees

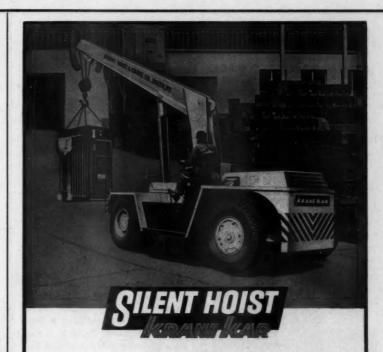
# WORKS FASTER THAN SIX MEN CUTTING BRUSH BY HAND!

■ Cutting Brush By Hand:

■ Drastically reduces labor costs. Big time and money-saver for construction crews, surveyors, fence and pipe line contractors. PERFORMANCE-PROVED by many utilities, railroads and lumbermen. SAFE! — fastens securely at operators' waist, protecting body and limbs from moving blade. Efficient 4.7 cu. in. gasoline engine. Automatic clutch, oversize flexible drive shaft absorbs shock and eliminates power-robbing gears. REPAYS ITS LOW COST — FAST! Write TO-DAY for prices and facts.

# R. M. NEWCOMB Co. DEPT. C.E., HATBORO, PENNA. HAE-RMN-7/61

For more facts, circle No. 379



#### SAVES \*478.03 EVERY MONTH

says V. JAMES DeNAPLES

Technical Services Foreman Norma-Hoffman Bearings Corp.

"This versatile yard crane simplifies our materials handling operations, cutting travel trips and saving us a considerable amount of work and time. Our KRANE KAR speeds unloading of incoming materials, transports and stacks them at storage..." RESULT: Monthly net savings—\$478.03!



360° BOOM ROTATION



GREATER WORKING REACHis pivoted well forward vide working reach of boom length! High underclearance s efficient handling of



ALSO AVAILABLE:

KRANE KAR — 180° SWING BOOM — Mechanical Geared and AllHydraulic Models. 5 Sizes: 1½, 2½, 5, 10, 12½ ton capacities.

Literature Available:
On 360°. Swing Boom—Bulletin No. 99 On 180° Swing Boom—Bulletin No. 79

SILENT HOIST & CRANE CO. BROOKLYN 20, N. Y.



oil during work on a \$575,000, 12-room addition to the Jeffersonville Central School at Jeffersonville, N. Y., is a Unit Model 617 Trenchoe owned by Schaefer Bros., Jeffersonville. The rig was used to excavate stormsewer drains, as well as to replace and load out topsoil.



porting pipe arch, shown in its final stage of erection, 200 million feet of gas daily at 880 psi over Coldwater Creek in a St. Louis County, Missouri. The 150-foot-long 16-inch pipe was fabria by Midwest Piping Division of Crane Co., for the Laclede Gas Co., St. ia

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Equipment **Enclid-Missis** 

Enelid-Illino Southern Eq

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#### HIGH PRESSURE CLEANING WITH CHAMPION PUMP



KEEPS EQUIPMENT OPERATING AT FULL CAPACITY



AVOIDS MANY COSTLY REPAIRS LABOR!



Champion Hi-Pressure Water Pumps deliver from 5 to 25 gpm at 500 psi . . . noxxle adjusts from jet stream to fine spray with one-quarter turn . . portable or stationary models.

#### HAMPION PNEUMATIC MACHINERY COMPANY

PRINCETON 20, ILLINOIS --

Please send me data on Cham pion Hi-Pressure Washers.

Address

City . .....State

For more facts, use coupen or circle

#### distributor doings

(Continued from preceding page)

been named a dealer for most of Maryland and Delaware, the District of Columbia, and parts of West Virginia, and Virginia; and Seastrom, Inc., 2351 Kentucky Ave., Indianapolis, Ind., has been appointed a distributor for most of the state of In-

#### Joins Trippeer staff

Richard Allen Trippeer, Jr., recently joined Trippeer Organizations, Inc., Memphis, Tenn.

Trippeer Organizations is the holding corporation for 11 constructionmachinery outlets, which include the Euclid-Memphis Sales, Inc., Memphis; Euclid Sales & Service, Inc., St. Louis: Euclid-Kentucky, Inc., Louisville: Euclid-Arkansas, Inc., Little Rock; Euclid-Tennessee, Inc., Nashville; Euclid-Knoxville, Inc.,





Sabur Points, Keen-Kut, Frost Tools, Hi-Duty Points, Chisels and all other Brunner & Lay Tools fully guaran-teed. Request Bulletin ST-259-9.

and get the service of

The extra service of a second tool is built into Brunner & Lay Air Tool Accessories. They are made on the principle that are made on the principle that if we can cut out, or cut down, the cost of a second tool we can get your business for the third. Here's how—(1) special formula tool steel, (2) scientific heat treatment; this, plus—advanced functional designs that make work easier and/or much faster. Tools backed by 79 years' service to the construction field. Check your stock and order Brunner & Lay, Inc., 9300 W. King St., Franklin Park, III. Plants & shops from coast to coast.

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carbide ROK-BITS . DRILL RODS . INTRASET STEEL COUPLINGS, ADAPTERS, EXTENSION STEEL, STRIK-ING BARS - MOIL POINTS, CLAY SPADES, ASPHALT CUTTERS, etc.

For more facts, use Request Card and circle No. 382

memo to all contractors: Barnes' new 5m and 7m Series SPC's are now the most advanced (and dependable) on the market.

Here are the reasons: venturi priming principle: Primes itself in 16-seconds—and does it with less liquid in pump body than other SPC's. economical: Pumps 33,000 gallons on one gallon greater capacity: Up to 135% more capacity than former models.

easily serviced: Volute, impeller and seal exposed by removing 3 nuts. Makes on-the-job-servicing faster and easier than ever.

Note: These are only a few of the advantages of Barnes' new and complete SPC line. Your local-Barnes distributor has all the answers. See him

FREE LITERATURE: Barnes has free descriptive literature on its sensational new SPC line, detailing complete specifications and performance. Write for it today.

For more facts, use Request Card and circle No. 383

PROJECT: Vete Minneapolis, Machine with Hand Drill Mo forced cond Truce equipment hospital routine hospital routine hospital routine hospital routine hospitally by horizontally by was braced to a with amount of with amount of rout. Truce equipment truce and truck routine hospitally are truck routine and truck routine r eat Truco equirite for new T

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218-3200 W. Day

CONTRACTORS AND EN TEMBER, 1961



Concrete mix is supplied to bridge girders, enclosed with wood forms and barricaded by a maze of steel scaffolding, by this Austin-Western 410 crane equipped with a 48-foot telescoping boom. The girders were reinforced as part of Peter Kiewit Sons' Co. project on the San Francisco-Oakland Bay Bridge remodeling job.



Revolutionizing mowing jobs on highway slopes is this "robot mower" invented by two South Carolina highway department engineers and now being patented. The rig is operated from a 3-switch panel on the truck. Control and power circuits to the mower are carried in a 200-foot multiconductor cable fed from a 12-foot boom.

Knoxville; Baton Rouge Equipment Co., Inc., Baton Rouge; Shreveport Equipment Co., Inc., Shreveport; Euclid-Mississippi, Inc., Jackson; Euclid-Illinois, Inc., Springfield; and Southern Equipment Co., Inc., Marietta, Ga.

#### Worthington dealer

Copper State Tractor, Inc., 407 S. 17th Ave., Phoenix, Ariz., has been appointed a distributor of portable mpressors and contractors' tools for Worthington Corp., Harrison N. J. The new distributor will cover the state of Arizona with the exception of Pima, Cochise, and Santa Cruz counties.

#### Dealer firm organized in New England area

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A new corporation, Cassidy & Lee, Inc., Canton, Mass., has been formed to handle sales, appraisals, and service of construction equipment in the New England area

John J. Cassidy is president; Robert R. Rose, vice president; and Lee F. Oldenburg, treasurer. Offices are at 1010 Turnpike Road.

#### **New company formed** in Salt Lake City

A new corporation, Western Road Machinery Co., Salt Lake City, Utah, has been formed to succeed to the construction-machinery distribution business of Western Machinery Co. in Utah, southern Idaho, and surrounding areas.

#### A.L.H. Street dies; was long a C&E contributor

■ Arthur L. H. Street, who for 34 years wrote the column, Avoid Legal Pitfalls, for CONTRACTORS AND ENGI-NEERS, died last month in Gulfport. Miss., after a long illness. He would be 84 this month. Street was a partner in the law firm of Leonard. Street & Deinard of Minneapolis, Minn.

#### **New Permiteco trademark**

A new trademark shield identifying its Permite chemically engineered construction materials has been adopted by Permiteco, Inc., Dayton, Ohio.

#### Firm changes name

■ Food Machinery & Chemical Corp., San Jose, Calif., has changed its name to FMC Corp. The change was made because the former name no longer reflected the full scope of the company's activities.

#### Clark Bros. names

James D. Gilbride has been appointed California district manager for Clark Bros. Co., one of the Dresser Industries, Inc., Olean, N. Y. Gilbride joined Clark Bros. Co. in 1949.



#### Prime-Mover Concrete Vibrator

Designed on the proven rolling-weight principle that:

- Produces high frequency powerful vibrations
   Permits the shaft to run cool and slow
   Provides one head portability
   Changes from small to large heads quickly
   Requires fewer parts —lies maintenance
   Gasoline or electric power units

Guaranteed by Prime-Mover Co. — recognized for de-pendability in concrete handling equipment. Write to us for distributor's name and a demonstration. Prime-Mover Co., Muscatine, Iowa.

PRIME-MOVER

re facts, use Request Card and circle No. 385



mpact cutting tried and abandoned: Truco Diamond Drills and portable equip-ment drill 123 holes 3"-3½" in 13" reinforced concrete in just 42½ hours.

PROJECT: Veterans' Hospital, Minneapolis, Minn. DISTRIBUTOR: Enghauser Co., Minneapolis, Minn. EQUIPMENT: Truco Model B Portable Diamond Drilling Machine with 350 rpm drill motor; Truco Model S Drill Stand with 500 rpm Hand Drill Motor; Truco Tru-Vac© Vacuum Pad; Truco Diamond Drill Bits, surface set, resettable. JOB: Drill holes for removal of a section of 13" thick reinforced concrete wall. Jackhammer noise proved unbearable to patients. Truco equipment did the job with practically no sound, mess or disturbance to be be be be been sound by a Truco Drill Stand (left, above) was anchored to the wall borisontally by a Truco Tru-Vac Vacuum Pad. Truco Model B (right, above) was braced to an I beam by its telescoping center post with shaft extension. 123 holes, 3" x 3\%" dia. were drilled in an average of 21 min. each: time varied with amount of reinforcing encountered. Slab weighed 8500 lbs. Savings are so great Truco equipment may pay for itself on a single job or in a single day. Write for new Truco catalog.

#### MASONRY DRILLING DIVISION

WHEEL TRUEING TOOL COMPANY

218-3200 W. Davison, Detroit 38, Mich. 575 Langlois, Windsor, Ont.

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Single \$15 to \$22 Suites to \$60 Special rates by the month or lease

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For use at temporary and permanent locations, stockpiles, and by bituminous material contractors at the jobsite.



TYPE CS - PITLESS - PORTABLE

Dept. B-70 today Phone NORTH 1231 WINSLOW GOVERNMENT STANDARD SCALE WORKS, INC. 25TH & HAYTHORNE TERRE HAUTE, IND

For more facts, use Request Card and circle No. 386

The following free catalogs, bulletins, and other specific literature are offered by manufacturers advertising in this issue and who advertisements were in our hands by August 15. To obtain any item circle the designated number on the Request Card.

Diamond blades—Report No. 101 containing detailed information and field-use reports from state highway officials and contractors on the use of Engelhard Hanovia SND-MB diamond abrasive. Circle No. 174 on Request Card.

Metal-structure installation service—Catalog describing the con-struction service offered by Armco for installation of metal drainage structures, utility conduits for sewers, retaining walls, or guardrail. Circle No. 96 on Request Card.

Trencher—Brochure on the fetures and benefits of the Arr Trench-Hog, said to trench up a 800 feet per hour, 6 to 20 inches via 3½ to 7 feet deep. Circle No. 183 Request Card.

Pile hammers—Bulletin 66-P avulcan drop pile hammers offered a standard sizes of 500 to 3,000 pound with special sizes to order. Circle N 181 on Request Card.

Buckets—Catalog giving full tails on Williams buckets for ever application. Circle No. 172 on Require Card.

Hose—Catalog showing the complete Continental line of contractor hose, hose fittings, boots, and water proof clothing. Circle No. 173 on Because Court

Piston rings—Booklet on the management of the Control of the San Perfect Circle OS89 heavy-duty pattern ring featuring tri-coil offs spring to increase drainage, or clogging. Circle No. 92 on Requestions

Piling rental—Catalog CE-9 & scribing the benefits of the Fole piling rental plan for steel-abst piling, pipe pile, H-pile, lightwein piling, pipe, rail. Circle No. 192 m Request Card.

Drill—Bulletin 185-2 on the 822 Model 40-CL, an adaptable and mobile machine for drilling to moderal depths. Sprague & Henwood. Cha No. 94 on Request Card.

Hardfacing—Catalog on Are hardfacing electrodes and wire li-lustrates 105 hardsurfacing applications and recommends the electron or wire to use for each. Circle No. I

Vibrators, feeders—Catalog of Syntron electromagnetic vibrate and feeders. Data on electric har-mers and concrete floats. Circle har-93 on Request Card.

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from Singapore, Bangkok, Cadiz or Hometown, USA, arriving by jet, body, rail or horseless carriage, you'll enjoy the fine accommodations of the Henry Hudson-headquarters of world travelers.

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1000 rooms - 1200 baths Swimming Pool VOYAGER ROOM -Continuous Entertainment Nightly Except Sunday

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Singles from \$7 Doubles from \$12



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NSGA RESOCIATION 32nd ANNUAL 46th ANNUAL ALL UNDER ONE ROOF COMBINED



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TIME: February 5-8, 1962 • PLACE: One of the world's biggest, finest exposition centers.



ACRES OF NEW IDEAS. More than 160 blue ribbon exhibitors. New equipment . . . new methods . . . new ideas. All to help you cut costs . . . increase efficiency and profits.

CHICAGO

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- FREE, FAST TRANSPORTATION between Conrad Hilton and McCormick Place. Buses scheduled every three minutes during rush hours. Every ten minutes throughout day.
- EXCELLENT DINING FACILITIES. No need to go out to eat. McCormick Place has three restaurants, one cafeteria. All large and modern. Prompt service, excellent food.
- REGISTRATION AND ADMISSION ARE FREE to users as well as producers of sand, gravel or ready mixed concrete.

PLAN NOW TO SEE THIS GREAT COMBINED INDUSTRIES SHOW

For more facts, use Request Card and circle No. 387

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Portable a comprehe the comple ardized mo application Circle No. S Iron ca on the Neer

Fittings Catalog of and sizes

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iron constr 193 on Rec Belt cor Stephens-A conveyors f

Concrete Gar-Bro lo shump con aggregate. Card.

on Request

Asphalt RS1256 illu Standard St stributor.

Puller—F capacities f Chisholm-M Request Car

Hydrauli tin 242-B, a Watson-Still pumps. Full Circle No. 18

Engine Monmouth a for Caterpill ery. Illustrat No. 191 on F

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Small Layton equal or g And, high Job pr pier holes air for mo

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#### september advertisements

Fittings for wire rope, chain— Catalog offering data on 2,000 types and sizes of Crosby Laughlin forged fittings for wire rope and chain. Circle No. 175 on Request Card.

Portable dredges—Bulletin 980, a comprehensive brochure describing the complete Dragon line of standardized model dredges and their wide applications. Ellicott Machine Corp. Circle No. 95 on Request Card.

Iron castings—168-page catalog on the Neenah line of gray and ductile iron construction castings. Circle No. 193 on Request Card.

d is

Belt conveyor-Bulletin 458 on Stephens-Adamson sectional belt conveyors featuring bent-plate deck-ing to simplify erection. Circle No. 187 on Request Card.

Concrete buckets-Catalog on Gar-Bro low-slump heavy-duty con-crete buckets designed to handle lowslump concrete with massive aggregate. Circle No. 179 on Request Card.

Asphalt distributor—Catalog No. RS1256 illustrating and describing Standard Steel's Model 424-56 asphalt distributor. Circle No. 188 on Request

Puller—Bulletin 146 on the versa-tile, lightweight CM puller offered in capacities from 3/4 ton to 6 tons. Chisholm-Moore. Circle No. 189 on Remest Card.

Hydraulic pumps, jacks—Bulle-tin 242-B, a booklet discussing Farrel Watson-Stillman hydraulic jacks and pumps. Full details and specifications. Circle No. 180 on Request Card.

Engine bearings—Catalog on Monmouth aluminum engine bearings for Caterpillar construction machin-ery, Illustrated, Clevite Service, Circle No. 191 on Request Card.

Pipe, couplings—Bulletin No. 59 on Naylor Spiralweld pipe and Wedgelock couplings for pipe lines in air, water, dredging, and ventilat-ing service. Circle No. 176 on Remest Card.

Pumps—Bulletin CH-61 on the complete Marlow line of pumps de-signed for a wide variety of applications. Circle No. 247 on Request Card.

Core drill—Bulletin 27-C&E on the Acker Ambassador core drill de-signed to core clean, neat holes in tile, concrete, and reinforced masonry. Circle No. 186 on Request Card that is bound in this issue

Diamond drills-Illustrated catalog on Truco diamond drills and portable equipment. Wheel Trueing Tool Co. Circle No. 190 on Request

Material handler—Catalog on the Econmobile Model 620. Eight pages of description and illustrations. American Road Equipment Co. Circle No. 182 on Request Card.

Trench drill-Bulletin on Salem trench drills, which reportedly can push pipe and casing from 3 inches to 4 feet in diameter as far as 250 feet without disturbing the surface. Circle No. 178 on Request Card that is bound in this issue

Air-cooled engine—Bulletin S-282 featuring the Wisconsin Model V-460D heavy-duty, air-cooled, 60-hp engine with valve-in-head design. Circle No. 177 on Request Card.

Barricades, lights—Catalog on the Esco line of barricades and transistorized warning lights. Illustrations. Electronic Specialties Co. Circle No. 185 on Request Card.

Blasting—Bulletin detailing the "presplitting" method of controlled blasting. Lists a variety of benefits. Hercules Powder. Circle No. 184 on

Loader—Bulletin LE-1097 covering the Eimco line of front-end crawler-loaders. Circle No. 123 on Request

V-belting; fasteners—Bulletin V-227 on Alligator V-belt fasteners and cross-woven-type V-belting avail-able by the foot. Flexible Steel Lacing Co. Circle No. 122 on Request Card.

# PRIME-MOVER

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For more facts, use Request Card and circle No. 389



Synclinal Sump Type

Pipe Sizes: %"-1",-1","-1",-2"-2"," and 3". By-pass Valve:



#### **Synclinal Line Type**

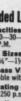
Pipe Sizes: 1/4"—1"—11/4"—11/2"—2"— 1/2" and 3". By-pass Valve: Not available.

Operating Pressures: Up to 80 p.s.i.



#### **Bonded Line Type**

Capacities: 10-20-30-50 and 75 G.P.M. Pipe Sizes: 1"-1¼"-1½"-2" and 2½". By-pass Valve: Available with or without. Operating Pressure: Up to 250 p.s.i.



#### MARVEL SYNCLINAL FILTERS

DEPENDABLE PROTECTION on all Hydraulic and other low pressure circulating

Designed to go more ACTIVE ditering area—MORE dependable protection—MORE productive operation before cleaning is necessary. Meet J.I.C. Standards.

EASY TO CLEAN—All Marvel Fil-ters are easy to clean. Line type units operate in any position and may be serviced without disturbing

OVER 900 O. E. M's. install 'Marvel



#### In-Line Filter

Capacities: Up to 60 G.P.M Pipe Sizes: %"-1"-11/4" and 11/2" (at both inlet and outle By-pass Valve: Available with or w



#### **Tandem Sump Type**

Capacities: 10—16—20—40—60—100— 150 and 200 G.P.M. Pipe Sizes: %"—1","—1","—2"—2"," and 3". Connections: Coupling—Male Nipple.



#### **Bonded Sump Type**

Pipe Sizes: 1"—1½"—1½"—2" and 2½". Connections: Coupling—"O" Ring— Male Nipple. By-pass Valve: Available with or without.

For further information on a specific type filter— Write—wire or phone

MARVEL ENGINEERING COMPANY

7227 N. Hamlin Ave., Chicago 45, III.
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Distributors in all principal cities Write for catalog on further details AYTON COMPANY, INC.

LAYTON PNEUMATIC DIAPHRAGM PUMPS

Small In Size\_ Big in Performance!

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#### **Manufacturer Memos**



J. R. L. Williams, vice - president— European opera-tions, for Worthington Corp.

Worthington Corp., Harrison, N. J., has elected J. R. L. Williams vice president-European operations. From headquarters in Paris, France, Williams will coordinate all production, engineering, sales, and service functions of seven associate companies located in Austria, France,

Germany, Italy, and Spain. He will also be responsible for integrating the output of these overseas plants with exports from the United States. and for maintaining liaison with a number of European licensee manufacturers.

Williams has been general European manager for the company since

Alfred H. Cercone has been named manager, parts service, for the company's marketing-service group. He has been manager, parts service, with the Regional Engineering and Service Division since 1958.

Bob D. Keeth has been named a

distribution representative for the firm's construction-equipment sales organization. He will handle Worthington's line of portable compressors, concrete machinery, and contractor's tools and pumps in the southern half of Texas, from headquarters in Hous-

Calvin Friar has been named manager, outdoor lighting products, for the Union Metal Mfg. Co., Canton, Ohio. Since 1959, he has been assistant manager of the company's Northern California-Northern Nevada district with headquarters in San Francisco.

Rudolf G. Sonneborn has elected chairman of the board Sonneborn Chemical & Re Corp., New York, N. Y., a v owned subsidiary of Witco Che Co., Inc.

William Wishnick has been ele president and chief executive of of the subsidiary.

The B. F. Goodrich Co., Ak Ohio, has named L. T. Greiner sistant to the president, in charge customer relations. Greiner form served as Pacific zone manager B. F. Goodrich Tire Co.

Mack Trucks, Inc., Plainfield, N. has appointed Nicholas Dykstra pa ident, chief executive officer, and d

Dykstra, recently vice president finance and director of McDon Aircraft Corp., was previously em tive vice president of Curtiss-Wrig

Charles C. Warne, Jr., has b named sales assistant to the vi president, Industrial Products Gra Rockwell-Standard Corp., Corace

Warne has had 25 years of exper ence in manufacturing and sales the electrical construction industrial

Motec Industries, Inc., Hopk Minn., has named Maj. Gen. John Guthrie, formerly commanding eral of the XIVth Army Corp Minneapolis, a vice president.

Gen. Guthrie will serve as president for systems manage and as director of the Moletro Motec Engineering, and Moh Foundry & Forge divisions.

Motec has named William S. C man Jr., chief administrative e neer. He will supervise engine planning and properties, produ coordination, and similar acti in the Engineering Research and I velopment Division.

The Thew Shovel Co., Lorain, Ch. has elected William W. Blauwi director and vice president of company. Blauvelt is director business planning and controller the firm.

Lawrence R. Kessel, a director vice president of Cockshutt P Equipment, Ltd., and director Brantford Coach & Body, Ltd., B ford, Ont., was also elected a director.

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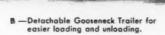
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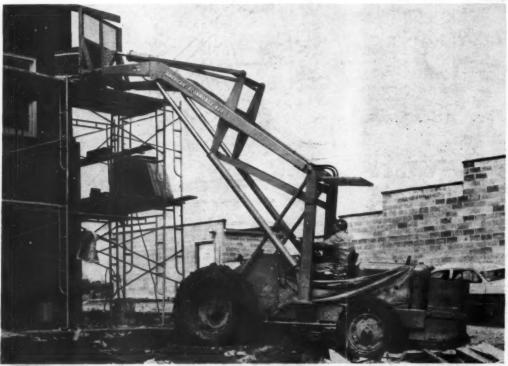
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